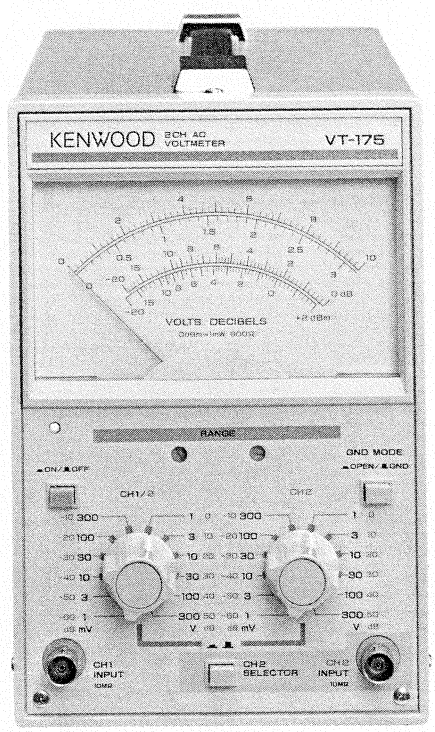
KENWOOD

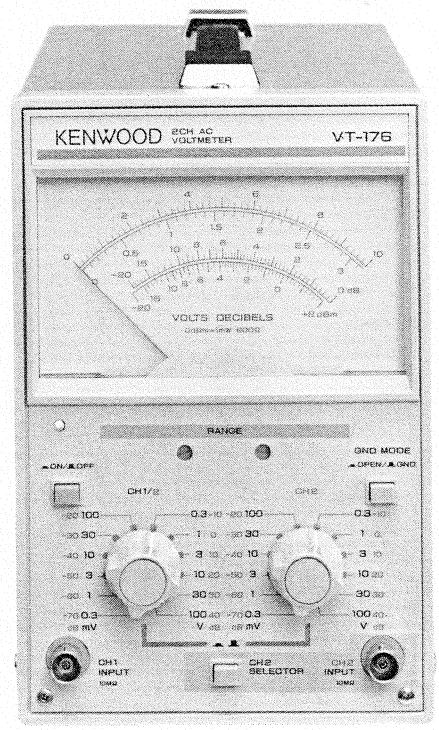
2CH AC VOLTMETER

VT-175
VT-176

SERVICE MANUAL

KENWOOD CORPORATION





WARNING

The following instructions are for use by qualified personnel only. To avoid electric shock, do not perform any servicing other than contained in the operating instructions unless you are qualified to do so.

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SPECIFICATIONS

Model		VT-175	VT-176
METER SECTION			
Measurable voltage		1 mV - 300 V in 12 ranges (1 mV, 3 mV, 10 mV, 30 mV,100 mV, 300 mV, 1V, 3 V, 10 V, 30 V, 100 V, and 300 V full scale)	0.3 mV - 100 V in 12 ranges (0.3 mV, 1 mV, 3 mV, 10 mV, 30 mV, 100 mV, 0,3 mV, 1 V, 3 V,10 V, 30 V and 100 V full scale)
dB		−80 to +50 dB (0 dB = 1 V)	−90 to +40 dB (0 dB = 1 V)
dBm		−80 to +52 dBm (0 dBm = 1 mW, 600Ω)	−90 to +42 dB (0 dBm = 1 mV, 600 Ω)
Error		Within ±3% of full scale at 1 kHz	
Frequency response		±10% (5 Hz - 1 MHz), ±5% (10 Hz - 500 kHz) and ±3% (20 Hz - 200 kHz) as ±2% (30 Hz - 100 kHz) referenced to 1 kHz response.	
Input impedance		10 MΩ±5%, with less than 45 pF parallel capacitance	
Durable input voltage		500 V (DC+AC peak) at 1 V - 300 V range 100 V (DC+AC peak) at 1 mV - 300 mV range	500 V (DC+AC peak) at 1 V - 100 V range 100 V (DC+AC peak) at 0.3 mV - 300 mV range
Stability		Within ±0.5% of full scale for ±10% line voltage fluctuation	
Residual voltage		Less than 20 μV with input shorted on 1 mV range	Less than 30 μV with input shorted on 0.3 mV range
Crosstalk	Individual	Less than −80 dB with other input terminated with 600 Ω	
	Interlock	Less than −50 dB with other input terminated with 600 Ω	
AMPLIFIER SECTION			
Gain		Approx. 60 dB	Approx. 70 dB
Output voltage		1 Vrms (Full scale) ±20%	
Output impedance		600 Ω ±20%	
Distortion		Less than 1% at full scale (Rated by signal-to-noise ratio in 1 mV and 1 V ranges)	Less than 1% at full scale (Rated by signal-to-noise ratio in 0.3 mV, 1 mV and 1 V ranges)
Signal-to-noise ratio		Over 40 dB at full scale	Over 40 dB at full scale (Over 30 dB at 0.3 mV range)
Frequency response		Within ±3 dB at 5 Hz - 500 kHz	
ENVIRONMENT			
Coefficient		±0.08%/°C	
Temperature		10 to 40 °C (within specification) 0 to 50 °C (full operation)	
Relative humidity		Less than 80%	

SPECIFICATIONS

Model	VT-175	VT-176
POWER SUPPLY SECTION		
Line voltage	100/120/220/240 VAC ±10%, 50/60 Hz	
Power consumption	Approx. 7 W	
DIMENSIONS		
W×H×D (mm) Values in ( ) include protrusions	128 (138)×190 (212)×238 (268)	
Net weight	Approx. 3 kg	
ACCESSORIES		
Power cable	1 pc.	
Input cable	BNC cord, 2 pcs.	
Replacement fuse	0.3 A 2 pcs, 0.5 A 2 pcs.	
Instraction manual	1 copy	

SAFETY

SAFETY

Before connecting the instrument to a power source, carefully read the following information, then verify that the proper power cord is used and the proper line fuse is installed for power source. The specified voltage is shown at the fuse holder of the AC inlet. If the power cord is not applied for specified voltage, there is always a certain amount of danger from electric shock.

Line voltage

This instrument operates using ac-power input voltages that 100/120/220/240 V at frequencies from 50 Hz to 60 Hz.

Power cord

The ground wire of the 3-wire ac power plug places the chassis and housing of the oscilloscope at earth ground. Do not attempt to defeat the ground wire connection or float the oscilloscope; to do so may pose a great safety hazard. The appropriate power cord is supplied by an option that is specified when the instrument is ordered.
The optional power cords are shown as follows in Fig. 1.

Line fuse

The fuse holder is located on the rear panel and contains the line fuse. Verify that the proper fuse is installed by replacing the line fuse.

Voltage conversion

This oscilloscope may be operated from either a 100 V to 240 V, 50/60 Hz power source. Use the following procedure to change from 100 to 240 volt operation or vice versa.

1. Remove the fuse holder.
2. Replace fuse F 1 with a fuse of appropriate value, 0.5 amp for 100 VAC to 120 VAC operation, 0.3 amp for 220 VAC to 240 VAC operation.
3. Reinsert it for appropriate voltage range.
4. When performing the reinsertion of fuse holder for the voltage conversion, the appropriate power cord should be used. (See Fig. 1.)

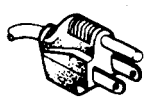
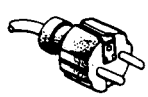
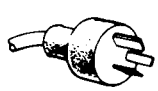
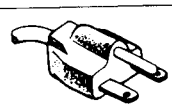
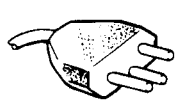
Plug configuration	Power cord and plug type	Factory installed instrument fuse	Line cord plug fuse	Parts No. for power cord set
	North American 120 volt/60 Hz Rated 15 amp (12 amp max; NEC)	0.5 A, 250 V Fast blow 6×30 mm	None	Cord: E30-1820-05
	Universal Europe 220 volt/50 Hz Rated 16 amp	North Europe 315 mA, 250 V Slow blow 5×20 mm Other Europe 0.3 A, 250 V Fast blow 6×30 mm	None	Cord: E30-1819-05
	U.K. 240 volt/50 Hz Rated 13 amp	0.3 A, 250 V Fast blow 6×30 mm	0.8 A Type C	—
	Australian 240 volt/50 Hz Rated 10 amp	0.3 A, 250 V Fast blow 6×30 mm	None	Cord: E30-1821-05
	North American 240 volt/60 Hz Rated 15 amp (12 amp max; NEC)	0.3 A, 250 V Fast blow 6×30 mm	None	—
	Switzerland 240 volt/50 Hz Rated 10 amp	0.3 A, 250 V Fast blow 6×30 mm	None	—

Fig. 1 Power Input Voltage Configuration

PARTS LIST

VT-175 UNIT

Y80-1350-00

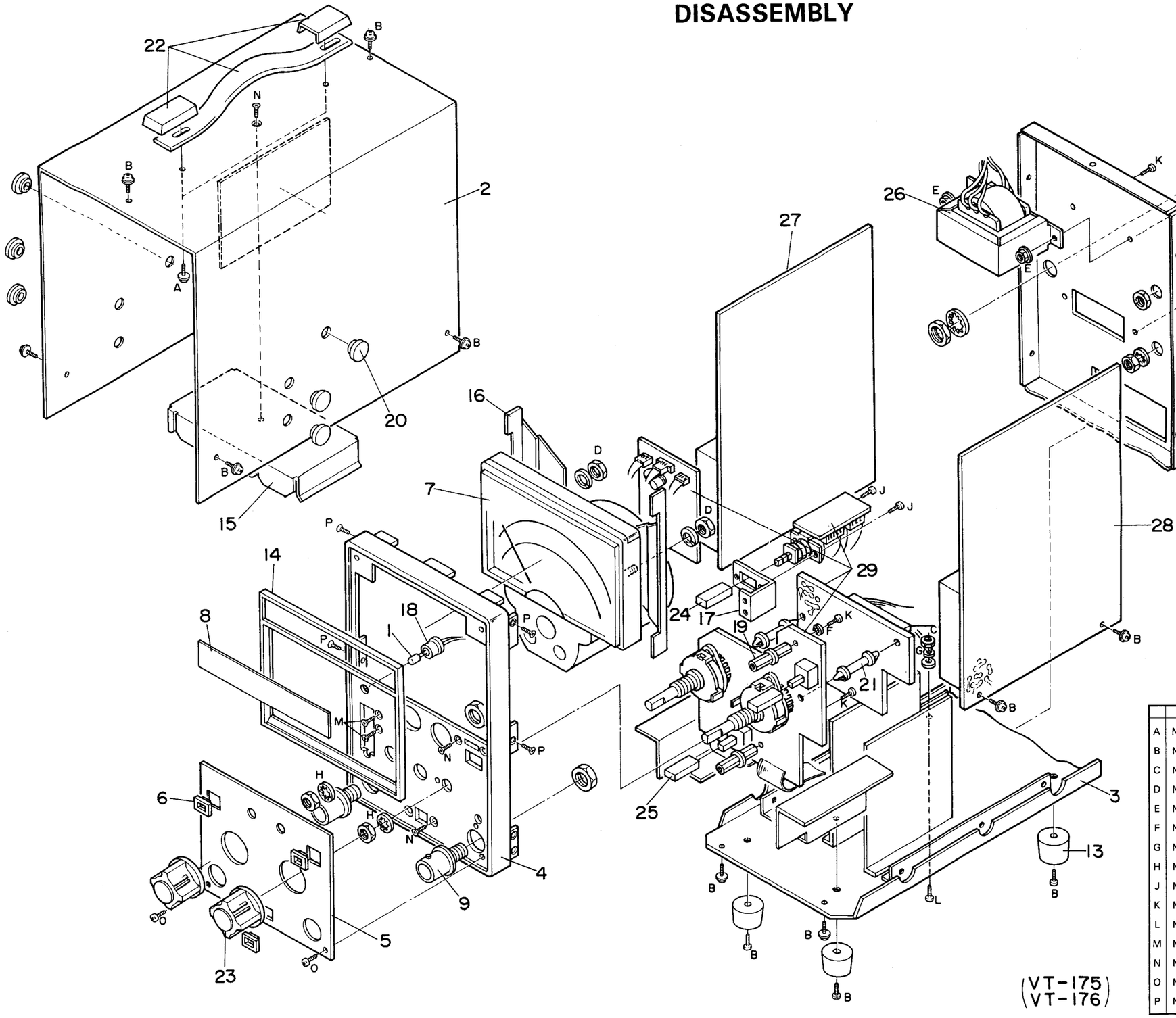
REF.NO	PARTS NO	NAME & DESCRIPTION
	841-0811-04	NAME PLATE,LINE VOLTAGE
	850-7709-00	INSTRUCTION MANUAL,JAP./ENG.
	E30-1644-15	BS POWER CORD
	E30-1818-05	JIS POWER CORD
	E30-1819-05	CEE POWER CORD
	E30-1820-05	UL/CSA POWER CORD
	E30-1821-05	SAA POWER CORD
	E31-0564-05	WIRE ASS'Y(GND GREEN)
	E31-5723-05	WIRE ASS'Y;P8 TO P8
	E31-5724-15	WIRE ASS'Y;P5 TO LED
	E31-5725-05	WIRE ASS'Y;P5 TO P5
	E31-5726-05	WIRE ASS'Y;P4 TO P10
	E31-5727-05	WIRE ASS'Y;P4 TO P20
	E31-5728-05	WIRE ASS'Y;P2 TO BNC(OUTPUT)
	E31-5729-05	WIRE ASS'Y;P1 TO BNC(INPUT)
	E31-5730-05	WIRE ASS'Y;P7 TO P7
	E31-5731-05	WIRE ASS'Y;P1 TO JL1,BNC(INPUT
	F05-3011-05	FUSE(6X30MM) 0.3A
	F05-3112-05	FUSE(5X20MM) 0.3AT
	F05-5013-05	FUSE(6X30MM) 0.5A
	F20-0610-04	INSULATOR 85MM X 75MM
	H01-5914-04	CARTON BOX
	H10-2802-02	FOAMED STYRENE PAD
	H20-1703-04	VINYL COVER
	J10-0421-03	BEZEL ASS'Y
	J19-1620-05	CORD KEEP
	J61-0049-05	WIRE BAND
	W03-2309-05	ACCESSORY CORD CA-41
1	AR4133S	LED (RED),POWER
2	A01-0823-32	CASE
3	A10-1418-52	CHASSIS
4	A20-2722-22	DIECAST PANEL
5	A21-1158-04	DECORATIVE PANEL
6	B07-0706-04	ESCUTCHEON
7	B31-0739-05	METER
8	B40-2925-04	NAME PLATE;MODEL NO.
9	E04-0253-15	BNC RECEPTACLE
10A	E18-0365-05	AC SELECTOR WITH 6X30MM FUSE
10B	E18-0366-15	AC SELECTOR WITH 5X20MM FUSE
11	E21-0657-04	TERMINAL (GND)
12	F15-0703-04	BLIND PLATE
13	J02-0363-04	RUBBER FOOT
14	J10-0422-03	BEZEL
15	J21-2840-04	PCB HOLDER
16	J21-2843-04	BLACKET FOR METER
17	J21-2844-04	BLACKET FOR SW
18	J21-2912-05	HOLDER FOR LED
19	J32-0892-04	BOSS
20	J42-0038-04	BUSHING
21	J61-0503-05	BOARD SUPPORT
22	K01-0532-05	HANDLE
23	K21-0906-04	KNOB,FOR CHANNEL
24	K27-0506-04	BUTTON;ORANGE
25	K27-0531-04	BUTTON;LIGHT GRAY
26	L01-9877-05	POWER TRANSFORMER
27	X65-1370-00	MAIN UNIT(L)
28	X65-1370-01	MAIN UNIT(R)
29	X66-1070-00	PANEL UNIT

VT-176 UNIT

Y80-1390-00

REF.NO	PARTS NO	NAME & DESCRIPTION
	B41-0811-04	NAME PLATE,LINE VOLTAGE
	B50-7720-00	INSTRUCTION MANUAL;JAP./ENG.
	E30-1644-15	BS POWER CORD
	E30-1818-05	JIS POWER CORD
	E30-1819-05	CEE POWER CORD
	E30-1820-05	UL/CSA POWER CORD
	E30-1821-05	SAA POWER CORD
	E31-0564-05	WIRE ASS'Y(GND GREEN)
	E31-5723-05	WIRE ASS'Y;P8 TO P8
	E31-5724-15	WIRE ASS'Y;P5 TO LED
	E31-5725-05	WIRE ASS'Y;P5 TO P5
	E31-5726-05	WIRE ASS'Y;P4 TO P10
	E31-5727-05	WIRE ASS'Y;P4 TO P20
	E31-5728-05	WIRE ASS'Y;P2 TO BNC(OUTPUT)
	E31-5729-05	WIRE ASS'Y;P1 TO BNC(INPUT)
	E31-5730-05	WIRE ASS'Y;P7 TO P7
	E31-5731-05	WIRE ASS'Y;P1 TO JL1,BNC(INPUT
	F05-3011-05	FUSE(6X30MM) 0.3A
	F05-3112-05	FUSE(5X20MM) 0.3AT
	F05-5013-05	FUSE(6X30MM) 0.5A
	F20-0610-04	INSULATOR 85MM X 75MM
	H01-5920-04	CARTON BOX
	H10-2802-02	FOAMED STYRENE PAD
	H20-1703-04	VINYL COVER
	J10-0426-03	BEZEL ASS'Y
	J19-1620-05	CORD KEEP
	J61-0049-05	WIRE BAND
	W03-2309-05	ACCESSORY CORD CA-41
1	AR4133S	LED (RED),POWER
2	A01-0823-32	CASE
3	A10-1418-52	CHASSIS
4	A20-2722-22	DIECAST PANEL
5	A21-1164-04	DECORATIVE PANEL
6	B07-0706-04	ESCUTCHEON
7	B31-0739-05	METER
8	B40-2929-04	NAME PLATE;MODEL NO.
9	E04-0253-15	BNC RECEPTACLE
10A	E18-0365-05	AC SELECTOR WITH 6X30MM FUSE
10B	E18-0366-15	AC SELECTOR WITH 5X20MM FUSE
11	E21-0657-04	TERMINAL (GND)
12	F15-0703-04	BLIND PLATE
13	J02-0363-04	RUBBER FOOT
14	J10-0422-03	BEZEL
15	J21-2840-04	PCB HOLDER
16	J21-2843-04	BLACKET FOR METER
17	J21-2844-04	BLACKET FOR SW
18	J21-2912-05	HOLDER FOR LED
19	J32-0892-04	BOSS
20	J42-0038-04	BUSHING
21	J61-0503-05	BOARD SUPPORT
22	K01-0532-05	HANDLE
23	K21-0906-04	KNOB,FOR CHANNEL
24	K27-0506-04	BUTTON;ORANGE
25	K27-0531-04	BUTTON;LIGHT GRAY
26	L01-9877-05	POWER TRANSFORMER
27	X65-1370-03	MAIN UNIT(L)
28	X65-1370-04	MAIN UNIT(R)
29	X66-1070-02	PANEL UNIT

DISASSEMBLY



SCREWS

	Parts No.	Parts Name		Figure
A	N09-0777-05	Sems screw	(M4×6)	
B	N09-0739-05	Sems taptite screw	(3×8)	
C	N10-2030-41	Hexagon nut	(M3)	
D	N10-2040-41	Hexagon nut	(M4)	
E	N14-0404-04	Flange nut	(M3)	
F	N15-1030-41	Plain washer	(ϕ3)	
G	N17-1030-41	Toothed lock washer	(ϕ3)	
H	N17-1090-41	Toothed lock washer	(ϕ9)	
J	N30-2606-41	Pan head screw	(M2.6×6)	
K	N30-3008-41	Pan head screw	(M3×8)	
L	N30-3010-41	Pan head screw	(M3×10)	
M	N32-2606-41	Flat head screw	(M2.6×6)	
N	N32-3008-41	Flat head screw	(M3×8)	
O	N35-2606-41	Binding head screw	(M2.6×6)	
P	N88-3008-41	Flat head taptite screw	(3×8)	

PARTS LIST (VT-175)

VT-175 MAIN UNIT (L)

(X65-1370-00)

REF.NO	PARTS NO	NAME & DESCRIPTION			
	F01-0832-14	HEAT SINK			
	F10-1518-04	SHIELD PLATE			
	J25-5375-03	PCB (UNMOUNTED)			
	N09-0718-05	SCREW.SEMS PAN HD M3X6			
C101	C91-0501-05	CAP. METAL FILM	0.047	10%	630V
C102	CQ93M1H332K	CAP. MYLAR	3300P	10%	50V
C103	NO USE				
C104	CQ92FM1H222J	CAP. MYLAR	2200P	5%	50V
C105	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C106	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C107	CC45FCH1H070D	CAP. CERAMIC	7P	0.5P	50V
C108	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C109	NO USE				
C110	CE04EW1E100M	CAP. ELECTRO	10	20%	25V
C111	CC45FCH1H010C	CAP. CERAMIC	1P	0.25P	50V
C112	CC45FCH1H020C	CAP. CERAMIC	2P	0.25P	50V
C113	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C114	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C115	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C116	CC45FCH1H120J	CAP. CERAMIC	12P	5%	50V
C117	CC45FCH1H120J	CAP. CERAMIC	12P	5%	50V
C118	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C119	CE04EW1A101M	CAP. ELECTRO	100	20%	10V
C120	NO USE				
C121	CE04EW1A470M	CAP. ELECTRO	47	20%	10V
C122	CE04EW1A471M	CAP. ELECTRO	470	20%	10V
C123	CE04EW1A470M	CAP. ELECTRO	47	20%	10V
C124	CC45FCH1H220J	CAP. CERAMIC	22P	5%	50V
C125	NO USE				
C126	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C129	CE04HW1H010M	CAP. ELECTRO	1	20%	50V
C130	CE04HW1H010M	CAP. ELECTRO	1	20%	50V
C131	NO USE				
C132	CE04EW1A470M	CAP. ELECTRO	47	20%	10V
C133	CE04EW1A470M	CAP. ELECTRO	47	20%	10V
C134	CE04EW1C102M	CAP. ELECTRO	1000	20%	16V
C135	CE04EW1C102M	CAP. ELECTRO	1000	20%	16V
C136	CQ92FM1H104K	CAP. MYLAR	0.1	10%	50V
C137	CQ92FM1H104K	CAP. MYLAR	0.1	10%	50V
C138	CQ92FM1H104K	CAP. MYLAR	0.1	10%	50V
C139	CQ92FM1H104K	CAP. MYLAR	0.1	10%	50V
C140	NO USE				
C141	CF93AN2E104K	CAP. METAL FILM	0.1	10%	250V
C142	CC45FCH1H120J	CAP. CERAMIC	12P	5%	50V
C143	CC45FCH1H070D	CAP. CERAMIC	7P	0.5P	50V
C147	CQ92FM1H103K	CAP. MYLAR	0.01	10%	50V
C148	CC45FCH1H100D	CAP. CERAMIC	10P	0.5P	50V
C149	NO USE				
C150	CQ93BP2A122F	CAP. MYLAR	1200P	1%	100V
C151	CQ92FM1H104K	CAP. MYLAR	0.1	10%	50V
C152	CE04EW1A221M	CAP. ELECTRO	220	20%	10V
C153	CC45FCH1H010C	CAP. CERAMIC	1P	0.25P	50V
D101	1S1588	DIODE			
D102	1S1588	DIODE			
D103	1S1588	DIODE			
D106	1S1588	DIODE			
D107	1S1588	DIODE			
D108	1S1588	DIODE			
D109	1S1588	DIODE			
D110	1S1588	DIODE			
D111	1S1588	DIODE			
D112	1S1588	DIODE			
D113	NO USE				
D114	1S1588	DIODE			
D115	1S1588	DIODE			
D116	NO USE				
D117	1S1588	DIODE			
D118	1S1588	DIODE			
D119	1S1588	DIODE			
D120	1S1588	DIODE			
D121	1S1588	DIODE			
D122	1S1588	DIODE			
D123	1S1588	DIODE			
D124	1S1588	DIODE			
D125	1S1588	DIODE			
D126	1S1588	DIODE			
D127	1S1588	DIODE			
D128	1S1588	DIODE			
D129	1S1588	DIODE			
D130	1S1588	DIODE			
D131	1S1588	DIODE			
D132	1S1588	DIODE			
D133	1S1588	DIODE			
D134	W02	DIODE			
K101	S51-1503-05	RELAY			
K102	S51-1503-05	RELAY			
P001	E40-3237-05	PIN CONNECTOR	2P		
P002	E40-3237-05	PIN CONNECTOR	2P		
P003	NO USE				
P004	E40-3237-05	PIN CONNECTOR	2P		
P005	E40-3237-05	PIN CONNECTOR	2P		
P006	E40-3238-05	PIN CONNECTOR	3 P		
P007	NO USE				
P008	E40-3238-05	PIN CONNECTOR	3 P		
P011	E40-3237-05	PIN CONNECTOR	2P		
P101	E40-3751-05	PIN CONNECTOR	15P		
P102	E40-0811-05	PIN CONNECTOR	8P		
P103	E40-0811-05	PIN CONNECTOR	8P		
Q101	2SK68A(M)	FET. N-CHANNEL			
Q102	2SK68A(M)	FET. N-CHANNEL			
Q103	2SA970(BL)	TR. SI. PNP			
Q104	2SC1923(D)	TR. SI. NPN			
Q111	2SC1815(Y)	TR. SI. NPN			
Q112	2SA970(BL)	TR. SI. PNP			
Q113	2SA970(BL)	TR. SI. PNP			
Q114	2SC1923(D)	TR. SI. NPN			
Q115	2SC1923(D)	TR. SI. NPN			
Q116	2SA970(BL)	TR. SI. PNP			
Q117	2SA970(BL)	TR. SI. PNP			
Q118	2SC1923(D)	TR. SI. NPN			
Q119	2SA970(BL)	TR. SI. PNP			
Q120	2SA970(BL)	TR. SI. PNP			
Q121	2SK30A(Y)	FET. N-CHANNEL			
Q122	2SC1923(D)	TR. SI. NPN			
Q123	2SC1923(D)	TR. SI. NPN			
Q124	2SK30A(Y)	FET. N-CHANNEL			
R101	R92-0744-05	RES. FIXED	9.99M	1%	1/2W
R102	RN14BK2C9531F	RES. METAL FILM	9.53K	1%	1/6W
R103	R92-1450-05	RES. SPECIAL POWER	6.8K	5%	1W
R104	RD14BB2C681J	RES. CARBON	680	5%	1/6W
R105	NO USE				
R106	RD14BB2E335J	RES. CARBON	3.3M	5%	1/4W
R107	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R108	RD14BB2C201J	RES. CARBON	200	5%	1/6W
R109	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R110	RD14BB2E750J	RES. CARBON	75	5%	1/4W
R111	RN14BK2C1100D	RES. METAL FILM	110	0.5%	1/6W
R112	RN14BK2C1561D	RES. METAL FILM	1.56K	0.5%	1/6W
R113	RN14BK2C60R0D	RES. METAL FILM	60.0	0.5%	1/6W
R114	RN14BK2C2780D	RES. METAL FILM	278	0.5%	1/6W
R115	RN14BK2C2780D	RES. METAL FILM	278	0.5%	1/6W
R116	RN14BK2E1900D	RES. METAL FILM	190	0.5%	1/4W
R117	RD14BB2C151J	RES. CARBON	150	5%	1/6W
R118	RN14BK2C4110D	RES. METAL FILM	411	0.5%	1/6W
R119	RN14BK2C4110D	RES. METAL FILM	411	0.5%	1/6W
R120	RN14BK2C4110D	RES. METAL FILM	411	0.5%	1/6W
R121	RD14BB2C150J	RES. CARBON	15	5%	1/6W
R124	RD14BB2C391J	RES. CARBON	390	5%	1/6W
R125	RD14BB2C391J	RES. CARBON	390	5%	1/6W
R130	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R131	RD14BB2C114J	RES. CARBON	110K	5%	1/6W
R132	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R133	RD14BB2C114J	RES. CARBON	110K	5%	1/6W
R134	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R135	RD14BB2C114J	RES. CARBON	110K	5%	1/6W
R136	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R137	RD14BB2C114J	RES. CARBON	110K	5%	1/6W
R138	RD14BB2C334J	RES. CARBON	330K	5%	1/6W
R139	RD14BB2C683J	RES. CARBON	68K	5%	1/6W

PARTS LIST (VT-175)

REF.NO	PARTS NO	NAME & DESCRIPTION			
R140	RD14BB2E432J	RES. CARBON	4.3K	5%	1/4W
R141	RD14BB2C121J	RES. CARBON	120	5%	1/6W
R142	RD14BB2E432J	RES. CARBON	4.3K	5%	1/4W
R143	RD14BB2C272J	RES. CARBON	2.7K	5%	1/6W
R144	RN14BK2C6191F	RES. METAL FILM	6.19K	1%	1/6W
R145	RD14BB2C681J	RES. CARBON	680	5%	1/6W
R146	RN14BK2C2900F	RES. METAL FILM	290	1%	1/6W
R147	RD14BB2C121J	RES. CARBON	120	5%	1/6W
R148	RD14BB2E3R3J	RES. CARBON	3.3	5%	1/4W
R149	RD14BB2E432J	RES. CARBON	4.3K	5%	1/4W
R150	RD14BB2C390J	RES. CARBON	39	5%	1/6W
R151	RD14BB2E432J	RES. CARBON	4.3K	5%	1/4W
R152	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R153	NO USE				
R154	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R155	RD14BB2C272J	RES. CARBON	2.7K	5%	1/6W
R156	RD14BB2E3R3J	RES. CARBON	3.3	5%	1/4W
R157	RD14BB2C681J	RES. CARBON	680	5%	1/6W
R158	RN14BK2C1692F	RES. METAL FILM	16.9K	1%	1/6W
R159	RN14BK2C3010F	RES. METAL FILM	301	1%	1/6W
R160	RD14BB2C681J	RES. CARBON	680	5%	1/6W
R161	RN14BK2C5230F	RES. METAL FILM	523	1%	1/6W
R162	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R163	RN14BK2C3010F	RES. METAL FILM	301	1%	1/6W
R164	RN14BK2C3480F	RES. METAL FILM	348	1%	1/6W
R165	RD14BB2E432J	RES. CARBON	4.3K	5%	1/4W
R166	RD14BB2E432J	RES. CARBON	4.3K	5%	1/4W
R167	RD14BB2C390J	RES. CARBON	39	5%	1/6W
R168	RD14BB2C681J	RES. CARBON	680	5%	1/6W
R169	RD14BB2C114J	RES. CARBON	110K	5%	1/6W
R170	RD14BB2C683J	RES. CARBON	68K	5%	1/6W
R171	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R172	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R173	RN14BK2C10R0F	RES. METAL FILM	10.0	1%	1/6W
R177	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R178	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R179	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R180	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R181	RD14BB2C201J	RES. CARBON	200	5%	1/6W
R186	RD14BB2C161J	RES. CARBON	160	5%	1/6W
TC101	C05-0031-15	CAP. TRIMMER	10P		
U001	TLP521-2(BL)	PHOTO COUPLER			
U002	TLP521-2(BL)	PHOTO COUPLER			
U003	TLP521-2(BL)	PHOTO COUPLER			
U101	MC14066BCP	IC. QUAD. ANALOG SW/QUAD. MPX			
U102	LM78M05CT	IC. POSITIVE VOLTAGE REGULATOR			
U103	LM7905CT	IC. NEGATIVE VOLTAGE REGULATOR			
VR101	R12-1545-05	RES. SEMI FIXED 1K B			
VR102	R12-0575-05	RES. SEMI FIXED 100 B			

VT-175 MAIN UNIT (R)

(X65-1370-01)

REF.NO	PARTS NO	NAME & DESCRIPTION			
	F01-0832-14	HEAT SINK			
	F10-1518-04	SHIELD PLATE			
	J25-5375-03	PCB (UNMOUNTED)			
	N09-0718-05	SCREW.SEMS PAN HD M3X6			
C101	C91-0501-05	CAP. METAL FILM	0.047	10%	630V
C102	CQ93M1H332K	CAP. MYLAR	3300P	10%	50V
C103	CQ92FM1H222K	CAP. MYLAR	2200P	10%	50V
C104	CQ92FM1H222J	CAP. MYLAR	2200P	5%	50V
C105	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C106	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C107	CC45FCH1H070D	CAP. CERAMIC	7P	0.5P	50V
C108	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C109	NO USE				
C110	CE04EW1E100M	CAP. ELECTRO	10	20%	25V
C111	CC45FCH1H010C	CAP. CERAMIC	1P	0.25P	50V
C112	CC45FCH1H020C	CAP. CERAMIC	2P	0.25P	50V
C113	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C114	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C115	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C116	CC45FCH1H120J	CAP. CERAMIC	12P	5%	50V
C117	CC45FCH1H120J	CAP. CERAMIC	12P	5%	50V
C118	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C119	CE04EW1A101M	CAP. ELECTRO	100	20%	10V
C120	NO USE				
C121	CE04EW1A470M	CAP. ELECTRO	47	20%	10V
C122	CE04EW1A471M	CAP. ELECTRO	470	20%	10V
C123	CE04EW1A470M	CAP. ELECTRO	47	20%	10V
C124	CC45FCH1H220J	CAP. CERAMIC	22P	5%	50V
C125	NO USE				
C126	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C129	CE04HW1H010M	CAP. ELECTRO	1	20%	50V
C130	CE04HW1H010M	CAP. ELECTRO	1	20%	50V
C131	NO USE				
C132	CE04EW1A470M	CAP. ELECTRO	47	20%	10V
C133	CE04EW1A470M	CAP. ELECTRO	47	20%	10V
C134	CE04EW1C102M	CAP. ELECTRO	1000	20%	16V
C135	CE04EW1C102M	CAP. ELECTRO	1000	20%	16V
C136	CQ92FM1H104K	CAP. MYLAR	0.1	10%	50V
C137	CQ92FM1H104K	CAP. MYLAR	0.1	10%	50V
C138	CQ92FM1H104K	CAP. MYLAR	0.1	10%	50V
C139	CQ92FM1H104K	CAP. MYLAR	0.1	10%	50V
C140	CQ92FM1H222K	CAP. MYLAR	2200P	10%	50V
C141	CF93AN2E104K	CAP. METAL FILM	0.1	10%	250V
C142	CC45FCH1H120J	CAP. CERAMIC	12P	5%	50V
C143	CC45FCH1H070D	CAP. CERAMIC	7P	0.5P	50V
C147	CQ92FM1H103K	CAP. MYLAR	0.01	10%	50V
C148	CC45FCH1H100D	CAP. CERAMIC	10P	0.5P	50V
C149	NO USE				
C150	CQ93BP2A122F	CAP. MYLAR	1200P	1%	100V
C151	CQ92FM1H104K	CAP. MYLAR	0.1	10%	50V
C152	CE04EW1A221M	CAP. ELECTRO	220	20%	10V
C153	CC45FCH1H010C	CAP. CERAMIC	1P	0.25P	50V
D101	1S1588	DIODE			
D102	1S1588	DIODE			
D103	1S1588	DIODE			
D106	1S1588	DIODE			
D107	1S1588	DIODE			
D108	1S1588	DIODE			
D109	1S1588	DIODE			
D110	1S1588	DIODE			
D111	1S1588	DIODE			
D112	1S1588	DIODE			
D113	NO USE				
D114	1S1588	DIODE			
D115	1S1588	DIODE			
D116	NO USE				
D117	1S1588	DIODE			
D118	1S1588	DIODE			
D119	1S1588	DIODE			
D120	1S1588	DIODE			
D121	1S1588	DIODE			
D122	1S1588	DIODE			
D123	1S1588	DIODE			
D124	1S1588	DIODE			
D134	W02	DIODE			
K101	S51-1503-05	RELAY			
K102	S51-1503-05	RELAY			
P001	E40-3237-05	PIN CONNECTOR	2P		
P002	E40-3237-05	PIN CONNECTOR	2P		
P003	NO USE				
P004	E40-3237-05	PIN CONNECTOR	2P		
P005	NO USE				
P006	E40-3238-05	PIN CONNECTOR	3 P		
P007	E40-3238-05	PIN CONNECTOR	3 P		
P008	E40-3238-05	PIN CONNECTOR	3 P		
P011	E40-3237-05	PIN CONNECTOR	2P		
P101	E40-3751-05	PIN CONNECTOR	15P		
P102	E40-0811-05	PIN CONNECTOR	8P		
P103	E40-0811-05	PIN CONNECTOR	8P		
Q101	2SK68A(M)	FET. N-CHANNEL			
Q102	2SK68A(M)	FET. N-CHANNEL			
Q103	2SA970(BL)	TR. SI. PNP			
Q104	2SC1923(D)	TR. SI. NPN			

PARTS LIST (VT-175)

REF.NO	PARTS NO	NAME & DESCRIPTION
Q105	2SA1015(Y)	TR. SI. PNP
Q106	2SA1015(Y)	TR. SI. PNP
Q107	2SA1015(Y)	TR. SI. PNP
Q108	2SA1015(Y)	TR. SI. PNP
Q109	2SA1015(Y)	TR. SI. PNP
Q110	2SA1015(Y)	TR. SI. PNP
Q111	2SC1815(Y)	TR. SI. NPN
Q112	2SA970(BL)	TR. SI. PNP
Q113	2SA970(BL)	TR. SI. PNP
Q114	2SC1923(D)	TR. SI. NPN
Q115	2SC1923(D)	TR. SI. NPN
Q116	2SA970(BL)	TR. SI. PNP
Q117	2SA970(BL)	TR. SI. PNP
Q118	2SC1923(D)	TR. SI. NPN
Q119	2SA970(BL)	TR. SI. PNP
Q120	2SA970(BL)	TR. SI. PNP
Q121	2SK30A(Y)	FET. N-CHANNEL
Q122	2SC1923(D)	TR. SI. NPN
Q123	2SC1923(D)	TR. SI. NPN
Q124	2SK30A(Y)	FET. N-CHANNEL
R101	R92-0744-05	RES. FIXED 9.99M 1% 1/2W
R102	RN14BK2C9531F	RES. METAL FILM 9.53K 1% 1/6W
R103	R92-1450-05	RES. SPECIAL POWER 6.8K 5% 1W
R104	RD14BB2C681J	RES. CARBON 680 5% 1/6W
R105	NO USE	
R106	RD14BB2E335J	RES. CARBON 3.3M 5% 1/4W
R107	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R108	RD14BB2C201J	RES. CARBON 200 5% 1/6W
R109	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R110	RD14BB2E750J	RES. CARBON 75 5% 1/4W
R111	RN14BK2C1100D	RES. METAL FILM 110 0.5% 1/6W
R112	RN14BK2C1561D	RES. METAL FILM 1.56K 0.5% 1/6W
R113	RN14BK2C60R0D	RES. METAL FILM 60.0 0.5% 1/6W
R114	RN14BK2C2780D	RES. METAL FILM 278 0.5% 1/6W
R115	RN14BK2C2780D	RES. METAL FILM 278 0.5% 1/6W
R116	RN14BK2E1900D	RES. METAL FILM 190 0.5% 1/4W
R117	RD14BB2C151J	RES. CARBON 150 5% 1/6W
R118	RN14BK2C4110D	RES. METAL FILM 411 0.5% 1/6W
R119	RN14BK2C4110D	RES. METAL FILM 411 0.5% 1/6W
R120	RN14BK2C4110D	RES. METAL FILM 411 0.5% 1/6W
R121	RD14BB2C150J	RES. CARBON 15 5% 1/6W
R122	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R123	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R124	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R125	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R126	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R127	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R128	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R129	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R130	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R131	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R132	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R133	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R134	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R135	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R136	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R137	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R138	RD14BB2C334J	RES. CARBON 330K 5% 1/6W
R139	RD14BB2C683J	RES. CARBON 68K 5% 1/6W
R140	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R141	RD14BB2C121J	RES. CARBON 120 5% 1/6W
R142	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R143	RD14BB2C272J	RES. CARBON 2.7K 5% 1/6W
R144	RN14BK2C6191F	RES. METAL FILM 6.19K 1% 1/6W
R145	RD14BB2C681J	RES. CARBON 680 5% 1/6W
R146	RN14BK2C2900F	RES. METAL FILM 290 1% 1/6W
R147	RD14BB2C121J	RES. CARBON 120 5% 1/6W
R148	RD14BB2E3R3J	RES. CARBON 3.3 5% 1/4W
R149	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R150	RD14BB2C390J	RES. CARBON 39 5% 1/6W
R151	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R152	RD14BB2C220J	RES. CARBON 22 5% 1/6W
R153	NO USE	
R154	RD14BB2C220J	RES. CARBON 22 5% 1/6W
R155	RD14BB2C272J	RES. CARBON 2.7K 5% 1/6W
R156	RD14BB2E3R3J	RES. CARBON 3.3 5% 1/4W
R157	RD14BB2C681J	RES. CARBON 680 5% 1/6W
R158	RN14BK2C1692F	RES. METAL FILM 16.9K 1% 1/6W
R159	RN14BK2C3010F	RES. METAL FILM 301 1% 1/6W
R160	RD14BB2C681J	RES. CARBON 680 5% 1/6W
R161	RN14BK2C5230F	RES. METAL FILM 523 1% 1/6W
R162	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R163	RN14BK2C3010F	RES. METAL FILM 301 1% 1/6W
R164	RN14BK2C3480F	RES. METAL FILM 348 1% 1/6W
R165	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R166	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R167	RD14BB2C390J	RES. CARBON 39 5% 1/6W
R168	RD14BB2C681J	RES. CARBON 680 5% 1/6W
R169	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R170	RD14BB2C683J	RES. CARBON 68K 5% 1/6W
R171	RD14BB2C331J	RES. CARBON 330 5% 1/6W
R172	RD14BB2C331J	RES. CARBON 330 5% 1/6W
R173	RN14BK2C10R0F	RES. METAL FILM 10.0 1% 1/6W
R177	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R178	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R179	RD14BB2C331J	RES. CARBON 330 5% 1/6W
R180	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R181	RD14BB2C201J	RES. CARBON 200 5% 1/6W
R186	RD14BB2C161J	RES. CARBON 160 5% 1/6W
TC101	C05-0404-05	CAP. TRIMMER 10P
U101	MC14066BCP	IC. QUAD. ANALOG SW/QUAD. MPX
U102	LM78M05CT	IC. POSITIVE VOLTAGE REGULATOR
U103	LM7905CT	IC. NEGATIVE VOLTAGE REGULATOR
VR101	R12-1545-05	RES. SEMI FIXED 1K B
VR102	R12-0575-05	RES. SEMI FIXED 100 B

VT-175 PANEL UNIT

(X66-1070-00)

REF.NO	PARTS NO	NAME & DESCRIPTION
	J25-5376-13	PCB (UNMOUNTED)
	R92-0150-05	JUMPING RES. ZERO OHM(10MM)
	R92-1061-05	JUMPING RES. ZERO OHM (5MM)
JW101	E31-5733-05	LEAD WIRE WITH CONNECTOR
JW102	NO USE	
JW103	E31-5735-05	LEAD WIRE WITH CONNECTOR
JW104	E31-5737-05	LEAD WIRE WITH CONNECTOR
JW201	E31-5732-05	LEAD WIRE WITH CONNECTOR
JW202	NO USE	
JW203	E31-5736-05	LEAD WIRE WITH CONNECTOR
JW204	E31-5737-05	LEAD WIRE WITH CONNECTOR
P001	E40-3239-05	PIN CONNECTOR 4 P
P002	E40-3238-05	PIN CONNECTOR 3 P
P003	E40-3239-05	PIN CONNECTOR 4 P
P004	NO USE	
P005	E40-3239-05	PIN CONNECTOR 4 P
P006	E40-3239-05	PIN CONNECTOR 4 P
P007	E40-3238-05	PIN CONNECTOR 3 P
P010	E40-3237-05	PIN CONNECTOR 2P
P020	E40-3237-05	PIN CONNECTOR 2P
Q001	2SC945(P)	TR. SI. NPN
R001	R90-0675-05	RES. NETWORK 12X47K 5%
R002	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R003	R90-0675-05	RES. NETWORK 12X47K 5%
S001	S42-1502-05	PUSH SWITCH
S002	S42-1502-05	PUSH SWITCH
S003	S40-6501-05	PUSH SWITCH
S101	S01-1518-05	ROTARY SWITCH
S201	S01-1518-05	ROTARY SWITCH
U001	TC74HC257AP	IC.QUAD 2-DATA SELECT./MPX(3-S
U002	TC74HC257AP	IC.QUAD 2-DATA SELECT./MPX(3-S
U003	TC74HC257AP	IC.QUAD 2-DATA SELECT./MPX(3-S

PARTS LIST (VT-176)

VT-176 MAIN UNIT (L)

(X65-1370-03)

REF.NO	PARTS NO	NAME & DESCRIPTION
	F01-0832-14	HEAT SINK
	F10-1518-04	SHIELD PLATE
	J25-5375-03	PCB (UNMOUNTED)
	N09-0718-05	SCREW.SEMS PAN HD M3X6
C101	C91-1313-05	CAP. POLIESTER 0.068 10% 630V
C102	CQ93M1H332K	CAP. MYLAR 3300P 10% 50V
C103	NO USE	
C104	CQ92FM1H222J	CAP. MYLAR 2200P 5% 50V
C105	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C106	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C107	CC45FCH1H330J	CAP. CERAMIC 33P 5% 50V
C108	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C109	NO USE	
C110	CE04EW1E100M	CAP. ELECTRO 10 20% 25V
C111	CC45FCH1H010C	CAP. CERAMIC 1P 0.25P 50V
C112	CC45FCH1H020C	CAP. CERAMIC 2P 0.25P 50V
C113	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C114	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C115	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C116	CC45FCH1H120J	CAP. CERAMIC 12P 5% 50V
C117	CC45FCH1H120J	CAP. CERAMIC 12P 5% 50V
C118	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C119	CE04EW1A101M	CAP. ELECTRO 100 20% 10V
C120	NO USE	
C121	CE04EW1A470M	CAP. ELECTRO 47 20% 10V
C122	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C123	CE04EW1A470M	CAP. ELECTRO 47 20% 10V
C124	CC45FCH1H120J	CAP. CERAMIC 12P 5% 50V
C125	NO USE	
C126	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C129	CE04HW1H010M	CAP. ELECTRO 1 20% 50V
C130	CE04HW1H010M	CAP. ELECTRO 1 20% 50V
C131	NO USE	
C132	CE04EW1A470M	CAP. ELECTRO 47 20% 10V
C133	CE04EW1A470M	CAP. ELECTRO 47 20% 10V
C134	CE04EW1C102M	CAP. ELECTRO 1000 20% 16V
C135	CE04EW1C102M	CAP. ELECTRO 1000 20% 16V
C136	CQ92FM1H104K	CAP. MYLAR 0.1 10% 50V
C137	CQ92FM1H104K	CAP. MYLAR 0.1 10% 50V
C138	CQ92FM1H104K	CAP. MYLAR 0.1 10% 50V
C139	CQ92FM1H104K	CAP. MYLAR 0.1 10% 50V
C140	NO USE	
C141	CF93AN2E104K	CAP. METAL FILM 0.1 10% 250V
C142	CC45FCH1H120J	CAP. CERAMIC 12P 5% 50V
C143	CC45FCH1H070D	CAP. CERAMIC 7P 0.5P 50V
C147	CQ92FM1H103K	CAP. MYLAR 0.01 10% 50V
C148	CC45FCH1H100D	CAP. CERAMIC 10P 0.5P 50V
C149	NO USE	
C150	CQ93BP2A122F	CAP. MYLAR 1200P 1% 100V
C151	CQ92FM1H104K	CAP. MYLAR 0.1 10% 50V
C152	CE04EW1A221M	CAP. ELECTRO 220 20% 10V
C153	CC45FCH1H010C	CAP. CERAMIC 1P 0.25P 50V
D101	1S1588	DIODE
D102	1S1588	DIODE
D103	1S1588	DIODE
D106	1S1588	DIODE
D107	1S1588	DIODE
D108	1S1588	DIODE
D109	1S1588	DIODE
D110	1S1588	DIODE
D111	1S1588	DIODE
D112	1S1588	DIODE
D113	1S1588	DIODE
D114	1S1588	DIODE
D115	1S1588	DIODE
D116	1S1588	DIODE
D117	1S1588	DIODE
D118	1S1588	DIODE
D119	1S1588	DIODE
D120	NO USE	
D121	1S1588	DIODE
D122	1S1588	DIODE
D123	1S1588	DIODE
D124	1S1588	DIODE
D125	1S1588	DIODE
D126	1S1588	DIODE
D127	1S1588	DIODE
D128	1S1588	DIODE
D129	1S1588	DIODE
D130	1S1588	DIODE
D131	1S1588	DIODE
D132	1S1588	DIODE
D133	1S1588	DIODE
D134	W02	DIODE
D135	1S1588	DIODE
K101	S51-1503-05	RELAY
K102	S51-1503-05	RELAY
P001	E40-3237-05	PIN CONNECTOR 2P
P002	E40-3237-05	PIN CONNECTOR 2P
P003	NO USE	
P004	E40-3237-05	PIN CONNECTOR 2P
P005	E40-3237-05	PIN CONNECTOR 2P
P006	E40-3238-05	PIN CONNECTOR 3 P
P007	NO USE	
P008	E40-3238-05	PIN CONNECTOR 3 P
P011	E40-3237-05	PIN CONNECTOR 2P
P101	E40-3751-05	PIN CONNECTOR 15P
P102	E40-0811-05	PIN CONNECTOR 8P
P103	E40-0811-05	PIN CONNECTOR 8P
Q101	2SK68A(M)	FET. N-CHANNEL
Q102	2SK68A(M)	FET. N-CHANNEL
Q103	2SA970(BL)	TR. SI. PNP
Q104	2SC1923(D)	TR. SI. NPN
Q111	2SC1815(Y)	TR. SI. NPN
Q112	2SA970(BL)	TR. SI. PNP
Q113	2SA970(BL)	TR. SI. PNP
Q114	2SC1923(D)	TR. SI. NPN
Q115	2SC1923(D)	TR. SI. NPN
Q116	2SA970(BL)	TR. SI. PNP
Q117	2SA970(BL)	TR. SI. PNP
Q118	2SC1923(D)	TR. SI. NPN
Q119	2SA970(BL)	TR. SI. PNP
Q120	2SA970(BL)	TR. SI. PNP
Q121	2SK30A(Y)	FET. N-CHANNEL
Q122	2SC1923(D)	TR. SI. NPN
Q123	2SC1923(D)	TR. SI. NPN
Q124	2SK30A(Y)	FET. N-CHANNEL
R101	R92-0744-05	RES. FIXED 9.99M 1% 1/2W
R102	RN14BK2C9531F	RES. METAL FILM 9.53K 1% 1/6W
R103	R92-1450-05	RES. SPECIAL POWER 6.8K 5% 1W
R104	RD14BB2C681J	RES. CARBON 680 5% 1/6W
R105	NO USE	
R106	RD14BB2E335J	RES. CARBON 3.3M 5% 1/4W
R107	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R108	RD14BB2C201J	RES. CARBON 200 5% 1/6W
R109	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R110	RD14BB2E750J	RES. CARBON 75 5% 1/4W
R111	RN14BK2C1221D	RES. METAL FILM 1.22K 0.5% 1/6W
R112	RN14BK2C4500D	RES. METAL FILM 450 0.5% 1/6W
R113	RN14BK2C60R0D	RES. METAL FILM 60.0 0.5% 1/6W
R114	RN14BK2C2780D	RES. METAL FILM 278 0.5% 1/6W
R115	RN14BK2C2780D	RES. METAL FILM 278 0.5% 1/6W
R116	RN14BK2E1900D	RES. METAL FILM 190 0.5% 1/4W
R117	RD14BB2C151J	RES. CARBON 150 5% 1/6W
R118	RN14BK2C4110D	RES. METAL FILM 411 0.5% 1/6W
R119	RN14BK2C4110D	RES. METAL FILM 411 0.5% 1/6W
R120	RN14BK2C4110D	RES. METAL FILM 411 0.5% 1/6W
R121	RD14BB2C150J	RES. CARBON 15 5% 1/6W
R124	RD14BB2C391J	RES. CARBON 390 5% 1/6W
R125	RD14BB2C391J	RES. CARBON 390 5% 1/6W
R130	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R131	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R132	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R133	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R134	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R135	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R136	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R137	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R138	RD14BB2C334J	RES. CARBON 330K 5% 1/6W

PARTS LIST (VT-176)

REF.NO	PARTS NO	NAME & DESCRIPTION			
R139	RD14BB2C683J	RES. CARBON	68K	5%	1/6W
R140	RD14BB2E432J	RES. CARBON	4.3K	5%	1/4W
R141	RD14BB2C121J	RES. CARBON	120	5%	1/6W
R142	RD14BB2E432J	RES. CARBON	4.3K	5%	1/4W
R143	RD14BB2C272J	RES. CARBON	2.7K	5%	1/6W
R144	RN14BK2C6191F	RES. METAL FILM	6.19K	1%	1/6W
R145	RD14BB2C681J	RES. CARBON	680	5%	1/6W
R146	RN14BK2C2900F	RES. METAL FILM	290	1%	1/6W
R147	RD14BB2C121J	RES. CARBON	120	5%	1/6W
R148	RD14BB2E3R3J	RES. CARBON	3.3	5%	1/4W
R149	RD14BB2E432J	RES. CARBON	4.3K	5%	1/4W
R150	RD14BB2C390J	RES. CARBON	39	5%	1/6W
R151	RD14BB2E432J	RES. CARBON	4.3K	5%	1/4W
R152	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R153	NO USE				
R154	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R155	RD14BB2C272J	RES. CARBON	2.7K	5%	1/6W
R156	RD14BB2E3R3J	RES. CARBON	3.3	5%	1/4W
R157	RD14BB2C681J	RES. CARBON	680	5%	1/6W
R158	RN14BK2C1692F	RES. METAL FILM	16.9K	1%	1/6W
R159	RN14BK2C3010F	RES. METAL FILM	301	1%	1/6W
R160	RD14BB2C681J	RES. CARBON	680	5%	1/6W
R161	RN14BK2C5230F	RES. METAL FILM	523	1%	1/6W
R162	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R163	RN14BK2C5230F	RES. METAL FILM	523	1%	1/6W
R164	RN14BK2C5900F	RES. METAL FILM	590	1%	1/6W
R165	RD14BB2E432J	RES. CARBON	4.3K	5%	1/4W
R166	RD14BB2E432J	RES. CARBON	4.3K	5%	1/4W
R167	RD14BB2C390J	RES. CARBON	39	5%	1/6W
R168	RD14BB2C681J	RES. CARBON	680	5%	1/6W
R169	RD14BB2C114J	RES. CARBON	110K	5%	1/6W
R170	RD14BB2C683J	RES. CARBON	68K	5%	1/6W
R171	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R172	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R173	RN14BK2C10R0F	RES. METAL FILM	10.0	1%	1/6W
R177	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R178	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R179	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R180	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R181	RD14BB2C201J	RES. CARBON	200	5%	1/6W
R182	RN14BK2C2871F	RES. METAL FILM	2.87K	1%	1/6W
R183	RN14BK2C6191F	RES. METAL FILM	6.19K	1%	1/6W
R186	RD14BB2C161J	RES. CARBON	160	5%	1/6W
TC101	C05-0031-15	CAP. TRIMMER	10P		
U001	TLP521-2(BL)	PHOTO COUPLER			
U002	TLP521-2(BL)	PHOTO COUPLER			
U003	TLP521-2(BL)	PHOTO COUPLER			
U101	MC14066BCP	IC, QUAD. ANALOG SW/QUAD. MPX			
U102	LM78M05CT	IC, POSITIVE VOLTAGE REGULATOR			
U103	LM7905CT	IC, NEGATIVE VOLTAGE REGULATOR			
VR101	R12-1545-05	RES. SEMI FIXED 1K B			
VR102	R12-0575-05	RES. SEMI FIXED 100 B			

VT-176 MAIN UNIT (R)

(X65-1370-04)

REF.NO	PARTS NO	NAME & DESCRIPTION			
	F01-0832-14	HEAT SINK			
	F10-1518-04	SHIELD PLATE			
	J25-5375-03	PCB (UNMOUNTED)			
	N09-0718-05	SCREW,SEMS PAN HD	M3X6		
C101	C91-1313-05	CAP. POLIESTER	0.068	10%	630V
C102	CQ93M1H332K	CAP. MYLAR	3300P	10%	50V
C103	CQ92FM1H222K	CAP. MYLAR	2200P	10%	50V
C104	CQ92FM1H222J	CAP. MYLAR	2200P	5%	50V
C105	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C106	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C107	CC45FCH1H330J	CAP. CERAMIC	33P	5%	50V
C108	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C109	NO USE				
C110	CE04EW1E100M	CAP. ELECTRO	10	20%	25V
C111	CC45FCH1H010C	CAP. CERAMIC	1P	0.25P	50V
C112	CC45FCH1H020C	CAP. CERAMIC	2P	0.25P	50V
C113	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C114	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C115	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C116	CC45FCH1H120J	CAP. CERAMIC	12P	5%	50V
C117	CC45FCH1H120J	CAP. CERAMIC	12P	5%	50V
C118	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C119	CE04EW1A101M	CAP. ELECTRO	100	20%	10V
C120	NO USE				
C121	CE04EW1A470M	CAP. ELECTRO	47	20%	10V
C122	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C123	CE04EW1A470M	CAP. ELECTRO	47	20%	10V
C124	CC45FCH1H120J	CAP. CERAMIC	12P	5%	50V
C125	NO USE				
C126	CE04EW1A331M	CAP. ELECTRO	330	20%	10V
C129	CE04HW1H010M	CAP. ELECTRO	1	20%	50V
C130	CE04HW1H010M	CAP. ELECTRO	1	20%	50V
C131	NO USE				
C132	CE04EW1A470M	CAP. ELECTRO	47	20%	10V
C133	CE04EW1A470M	CAP. ELECTRO	47	20%	10V
C134	CE04EW1C102M	CAP. ELECTRO	1000	20%	16V
C135	CE04EW1C102M	CAP. ELECTRO	1000	20%	16V
C136	CQ92FM1H104K	CAP. MYLAR	0.1	10%	50V
C137	CQ92FM1H104K	CAP. MYLAR	0.1	10%	50V
C138	CQ92FM1H104K	CAP. MYLAR	0.1	10%	50V
C139	CQ92FM1H104K	CAP. MYLAR	0.1	10%	50V
C140	CQ92FM1H222K	CAP. MYLAR	2200P	10%	50V
C141	CF93AN2E104K	CAP. METAL FILM	0.1	10%	250V
C142	CC45FCH1H120J	CAP. CERAMIC	12P	5%	50V
C143	CC45FCH1H070D	CAP. CERAMIC	7P	0.5P	50V
C147	CQ92FM1H103K	CAP. MYLAR	0.01	10%	50V
C148	CC45FCH1H100D	CAP. CERAMIC	10P	0.5P	50V
C149	NO USE				
C150	CQ93BP2A122F	CAP. MYLAR	1200P	1%	100V
C151	CQ92FM1H104K	CAP. MYLAR	0.1	10%	50V
C152	CE04EW1A221M	CAP. ELECTRO	220	20%	10V
C153	CC45FCH1H010C	CAP. CERAMIC	1P	0.25P	50V
D101	1S1588	DIODE			
D102	1S1588	DIODE			
D103	1S1588	DIODE			
D106	1S1588	DIODE			
D107	1S1588	DIODE			
D108	1S1588	DIODE			
D109	1S1588	DIODE			
D110	1S1588	DIODE			
D111	1S1588	DIODE			
D112	1S1588	DIODE			
D113	1S1588	DIODE			
D114	1S1588	DIODE			
D115	1S1588	DIODE			
D116	1S1588	DIODE			
D117	1S1588	DIODE			
D118	1S1588	DIODE			
D119	1S1588	DIODE			
D120	NO USE				
D121	1S1588	DIODE			
D122	1S1588	DIODE			
D123	1S1588	DIODE			
D124	1S1588	DIODE			
D125	1S1588	DIODE			
D126	1S1588	DIODE			
D127	1S1588	DIODE			
D128	1S1588	DIODE			
D129	1S1588	DIODE			
D130	1S1588	DIODE			
D131	1S1588	DIODE			
D132	1S1588	DIODE			
D133	1S1588	DIODE			
D134	W02	DIODE			
D135	1S1588	DIODE			
K101	S51-1503-05	RELAY			
K102	S51-1503-05	RELAY			
P001	E40-3237-05	PIN CONNECTOR	2P		
P002	E40-3237-05	PIN CONNECTOR	2P		
P003	NO USE				
P004	E40-3237-05	PIN CONNECTOR	2P		
P005	NO USE				
P006	E40-3238-05	PIN CONNECTOR	3 P		
P007	E40-3238-05	PIN CONNECTOR	3 P		
P008	E40-3238-05	PIN CONNECTOR	3 P		

PARTS LIST (VT-176)

REF.NO	PARTS NO	NAME & DESCRIPTION			
P011	E40-3237-05	PIN CONNECTOR	2P		
P101	E40-3751-05	PIN CONNECTOR	15P		
P102	E40-0811-05	PIN CONNECTOR	8P		
P103	E40-0811-05	PIN CONNECTOR	8P		
Q101	2SK68A(M)	FET, N-CHANNEL			
Q102	2SK68A(M)	FET, N-CHANNEL			
Q103	2SA970(BL)	TR, SI, PNP			
Q104	2SC1923(D)	TR, SI, NPN			
Q105	2SA1015(Y)	TR, SI, PNP			
Q106	2SA1015(Y)	TR, SI, PNP			
Q107	2SA1015(Y)	TR, SI, PNP			
Q108	2SA1015(Y)	TR, SI, PNP			
Q109	2SA1015(Y)	TR, SI, PNP			
Q110	2SA1015(Y)	TR, SI, PNP			
Q111	2SC1815(Y)	TR, SI, NPN			
Q112	2SA970(BL)	TR, SI, PNP			
Q113	2SA970(BL)	TR, SI, PNP			
Q114	2SC1923(D)	TR, SI, NPN			
Q115	2SC1923(D)	TR, SI, NPN			
Q116	2SA970(BL)	TR, SI, PNP			
Q117	2SA970(BL)	TR, SI, PNP			
Q118	2SC1923(D)	TR, SI, NPN			
Q119	2SA970(BL)	TR, SI, PNP			
Q120	2SA970(BL)	TR, SI, PNP			
Q121	2SK30A(Y)	FET, N-CHANNEL			
Q122	2SC1923(D)	TR, SI, NPN			
Q123	2SC1923(D)	TR, SI, NPN			
Q124	2SK30A(Y)	FET, N-CHANNEL			
R101	R92-0744-05	RES. FIXED	9.99M	1%	1/2W
R102	RN14BK2C9531F	RES. METAL FILM	9.53K	1%	1/6W
R103	R92-1450-05	RES. SPECIAL POWER	6.8K	5%	1W
R104	RD14BB2C681J	RES. CARBON	680	5%	1/6W
R105	NO USE				
R106	RD14BB2E335J	RES. CARBON	3.3M	5%	1/4W
R107	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R108	RD14BB2C201J	RES. CARBON	200	5%	1/6W
R109	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R110	RD14BB2E750J	RES. CARBON	75	5%	1/4W
R111	RN14BK2C1221D	RES. METAL FILM	1.22K	0.5%	1/6W
R112	RN14BK2C4500D	RES. METAL FILM	450	0.5%	1/6W
R113	RN14BK2C60R0D	RES. METAL FILM	60.0	0.5%	1/6W
R114	RN14BK2C2780D	RES. METAL FILM	278	0.5%	1/6W
R115	RN14BK2C2780D	RES. METAL FILM	278	0.5%	1/6W
R116	RN14BK2E1900D	RES. METAL FILM	190	0.5%	1/4W
R117	RD14BB2C151J	RES. CARBON	150	5%	1/6W
R118	RN14BK2C4110D	RES. METAL FILM	411	0.5%	1/6W
R119	RN14BK2C4110D	RES. METAL FILM	411	0.5%	1/6W
R120	RN14BK2C4110D	RES. METAL FILM	411	0.5%	1/6W
R121	RD14BB2C150J	RES. CARBON	15	5%	1/6W
R122	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R123	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R124	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R125	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R126	RD14BB2C114J	RES. CARBON	110K	5%	1/6W
R127	RD14BB2C114J	RES. CARBON	110K	5%	1/6W
R128	RD14BB2C114J	RES. CARBON	110K	5%	1/6W
R129	RD14BB2C114J	RES. CARBON	110K	5%	1/6W
R130	RD14BB2C114J	RES. CARBON	110K	5%	1/6W
R131	RD14BB2C114J	RES. CARBON	110K	5%	1/6W
R132	RD14BB2C114J	RES. CARBON	110K	5%	1/6W
R133	RD14BB2C114J	RES. CARBON	110K	5%	1/6W
R134	RD14BB2C114J	RES. CARBON	110K	5%	1/6W
R135	RD14BB2C114J	RES. CARBON	110K	5%	1/6W
R136	RD14BB2C114J	RES. CARBON	110K	5%	1/6W
R137	RD14BB2C114J	RES. CARBON	110K	5%	1/6W
R138	RD14BB2C334J	RES. CARBON	330K	5%	1/6W
R139	RD14BB2C683J	RES. CARBON	68K	5%	1/6W
R140	RD14BB2E432J	RES. CARBON	4.3K	5%	1/4W
R141	RD14BB2C121J	RES. CARBON	120	5%	1/6W
R142	RD14BB2E432J	RES. CARBON	4.3K	5%	1/4W
R143	RD14BB2C272J	RES. CARBON	2.7K	5%	1/6W
R144	RN14BK2C6191F	RES. METAL FILM	6.19K	1%	1/6W
R145	RD14BB2C681J	RES. CARBON	680	5%	1/6W
R146	RN14BK2C2900F	RES. METAL FILM	290	1%	1/6W
R147	RD14BB2C121J	RES. CARBON	120	5%	1/6W
R148	RD14BB2E3R3J	RES. CARBON	3.3	5%	1/4W
R149	RD14BB2E432J	RES. CARBON	4.3K	5%	1/4W
R150	RD14BB2C390J	RES. CARBON	39	5%	1/6W
R151	RD14BB2E432J	RES. CARBON	4.3K	5%	1/4W
R152	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R153	NO USE				
R154	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R155	RD14BB2C272J	RES. CARBON	2.7K	5%	1/6W
R156	RD14BB2E3R3J	RES. CARBON	3.3	5%	1/4W
R157	RD14BB2C681J	RES. CARBON	680	5%	1/6W
R158	RN14BK2C1692F	RES. METAL FILM	16.9K	1%	1/6W
R159	RN14BK2C3010F	RES. METAL FILM	301	1%	1/6W
R160	RD14BB2C681J	RES. CARBON	680	5%	1/6W
R161	RN14BK2C5230F	RES. METAL FILM	523	1%	1/6W
R162	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R163	RN14BK2C5230F	RES. METAL FILM	523	1%	1/6W
R164	RN14BK2C5900F	RES. METAL FILM	590	1%	1/6W
R165	RD14BB2E432J	RES. CARBON	4.3K	5%	1/4W
R166	RD14BB2E432J	RES. CARBON	4.3K	5%	1/4W
R167	RD14BB2C390J	RES. CARBON	39	5%	1/6W
R168	RD14BB2C681J	RES. CARBON	680	5%	1/6W
R169	RD14BB2C114J	RES. CARBON	110K	5%	1/6W
R170	RD14BB2C683J	RES. CARBON	68K	5%	1/6W
R171	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R172	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R173	RN14BK2C10R0F	RES. METAL FILM	10.0	1%	1/6W
R177	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R178	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R179	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R180	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R181	RD14BB2C201J	RES. CARBON	200	5%	1/6W
R182	RN14BK2C2871F	RES. METAL FILM	2.87K	1%	1/6W
R183	RN14BK2C6191F	RES. METAL FILM	6.19K	1%	1/6W
R184	NO USE				
R185	RD14BB2C821J	RES. CARBON	820	5%	1/6W
R186	RD14BB2C161J	RES. CARBON	160	5%	1/6W
TC101	C05-0404-05	CAP. TRIMMER	10P		
U101	MC14066BCP	IC, QUAD. ANALOG SW/QUAD. MPX			
U102	LM78M05CT	IC, POSITIVE VOLTAGE REGULATOR			
U103	LM7905CT	IC, NEGATIVE VOLTAGE REGULATOR			
VR101	R12-1545-05	RES. SEMI FIXED 1K B			
VR102	R12-0575-05	RES. SEMI FIXED 100 B			

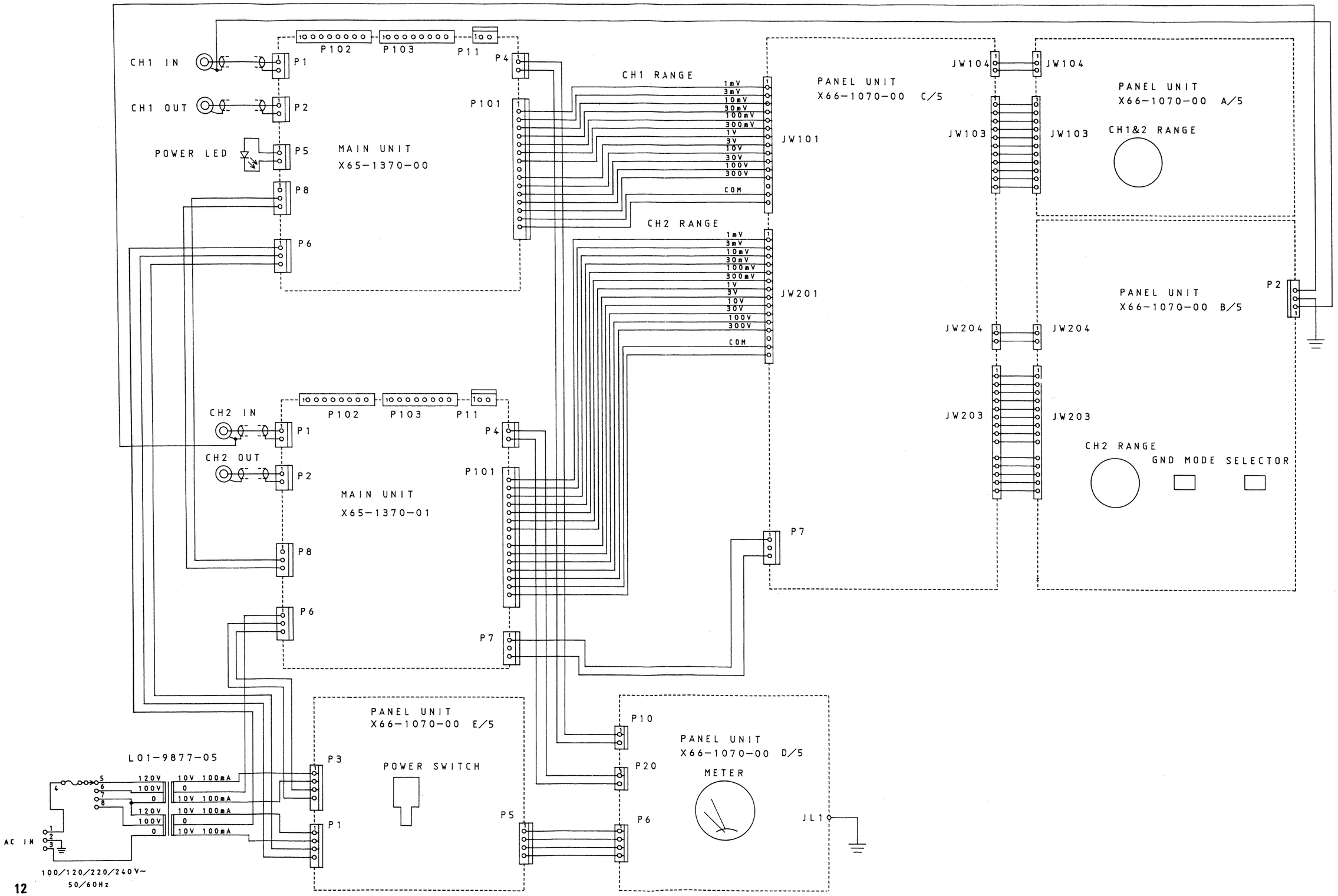
PARTS LIST (VT-176)

VT-176 PANEL UNIT

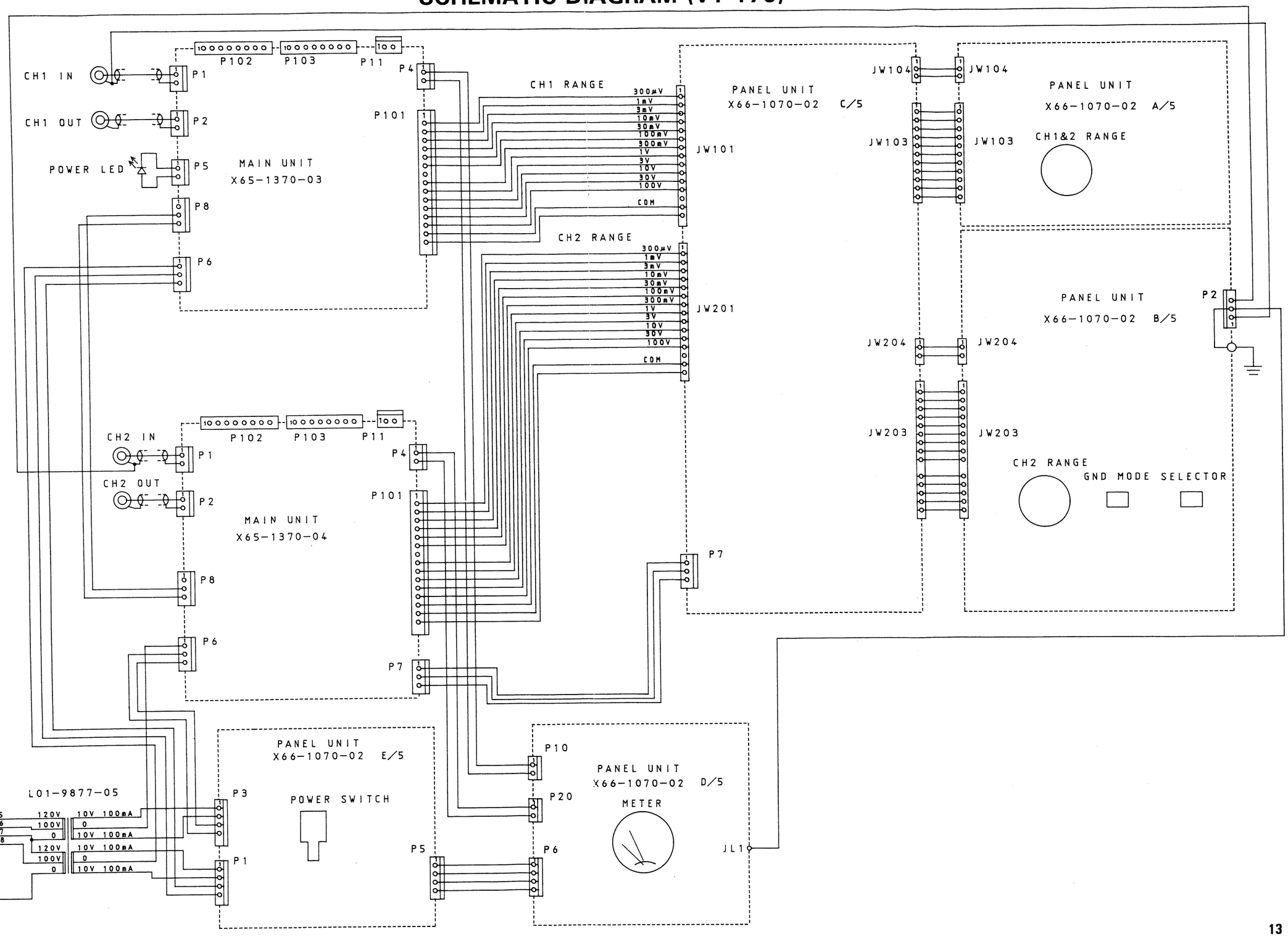
(X66-1070-02)

REF.NO	PARTS NO	NAME & DESCRIPTION
	J25-5376-13	PCB (UNMOUNTED)
	RD14BB2C4 72J	RES. CARBON 4.7K 5% 1/6W
	R92-0150-05	JUMPING RES. ZERO OHM(10MM)
	R92-1061-05	JUMPING RES. ZERO OHM (5MM)
JW101	E31-5790-05	
JW102	NO USE	
JW103	E31-5735-05	LEAD WIRE WITH CONNECTOR
JW104	E31-5737-05	LEAD WIRE WITH CONNECTOR
JW201	E31-5791-05	LEAD WIRE WITH CONNECTOR
JW202	NO USE	
JW203	E31-5736-05	LEAD WIRE WITH CONNECTOR
JW204	E31-5737-05	LEAD WIRE WITH CONNECTOR
P001	E40-3239-05	PIN CONNECTOR 4 P
P002	E40-3238-05	PIN CONNECTOR 3 P
P003	E40-3239-05	PIN CONNECTOR 4 P
P004	NO USE	
P005	E40-3239-05	PIN CONNECTOR 4 P
P006	E40-3239-05	PIN CONNECTOR 4 P
P007	E40-3238-05	PIN CONNECTOR 3 P
P010	E40-3237-05	PIN CONNECTOR 2P
P020	E40-3237-05	PIN CONNECTOR 2P
Q001	2SC945(P)	TR. SI. NPN
R001	R90-0675-05	RES. NETWORK 12X47K 5%
R002	NO USE	
R003	R90-0675-05	RES. NETWORK 12X47K 5%
S001	S42-1502-05	PUSH SWITCH
S002	S42-1502-05	PUSH SWITCH
S003	S40-6501-05	PUSH SWITCH
S101	S01-1518-05	ROTARY SWITCH
S201	S01-1518-05	ROTARY SWITCH
U001	TC74HC257AP	IC.QUAD 2-DATA SELECT./MPX(3-S
U002	TC74HC257AP	IC.QUAD 2-DATA SELECT./MPX(3-S
U003	TC74HC257AP	IC.QUAD 2-DATA SELECT./MPX(3-S

SCHEMATIC DIAGRAM (VT-175)

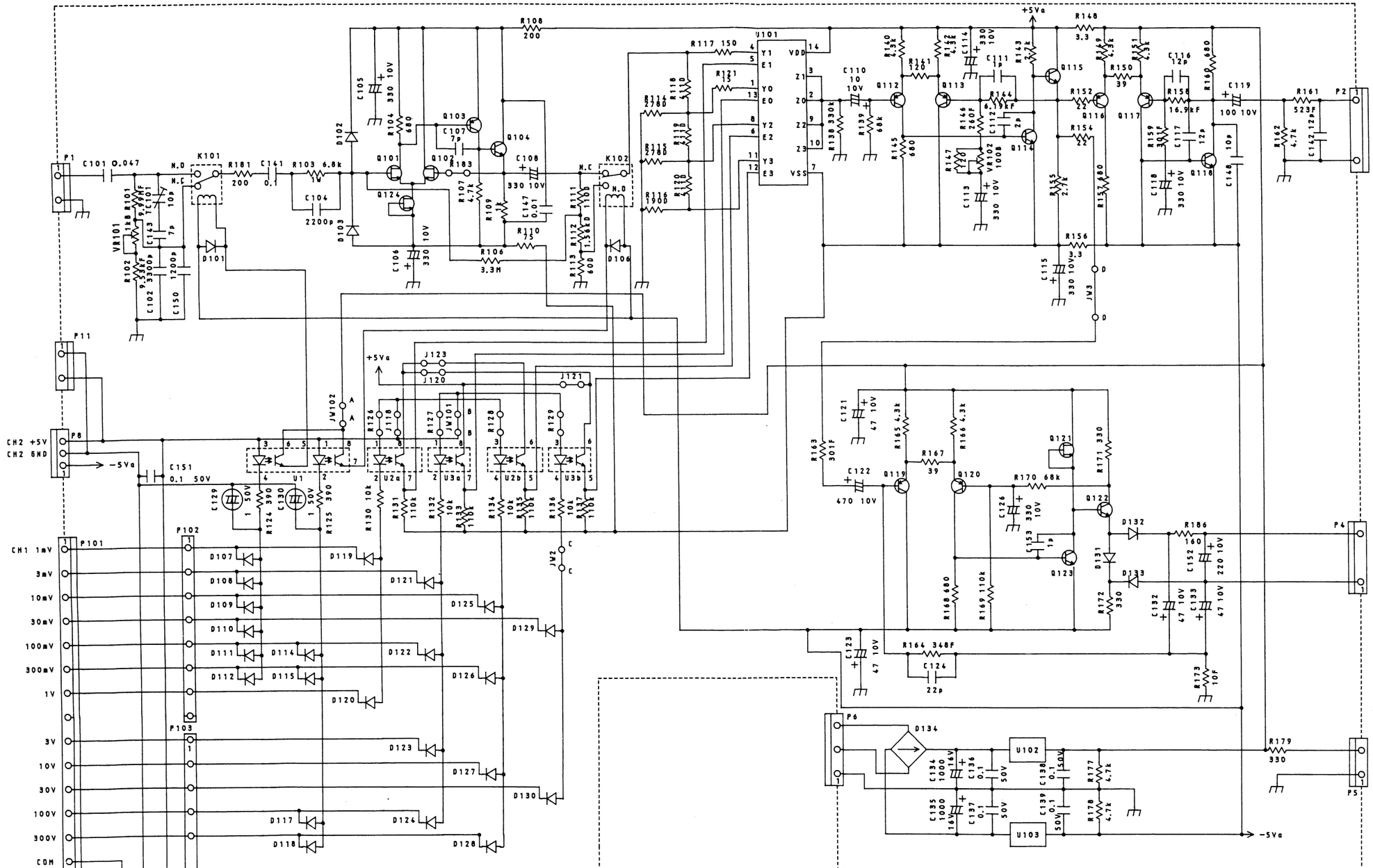


SCHEMATIC DIAGRAM (VT-176)



SCHEMATIC DIAGRAM (VT-175)

MAIN UNIT (L) (X65-1370-00)

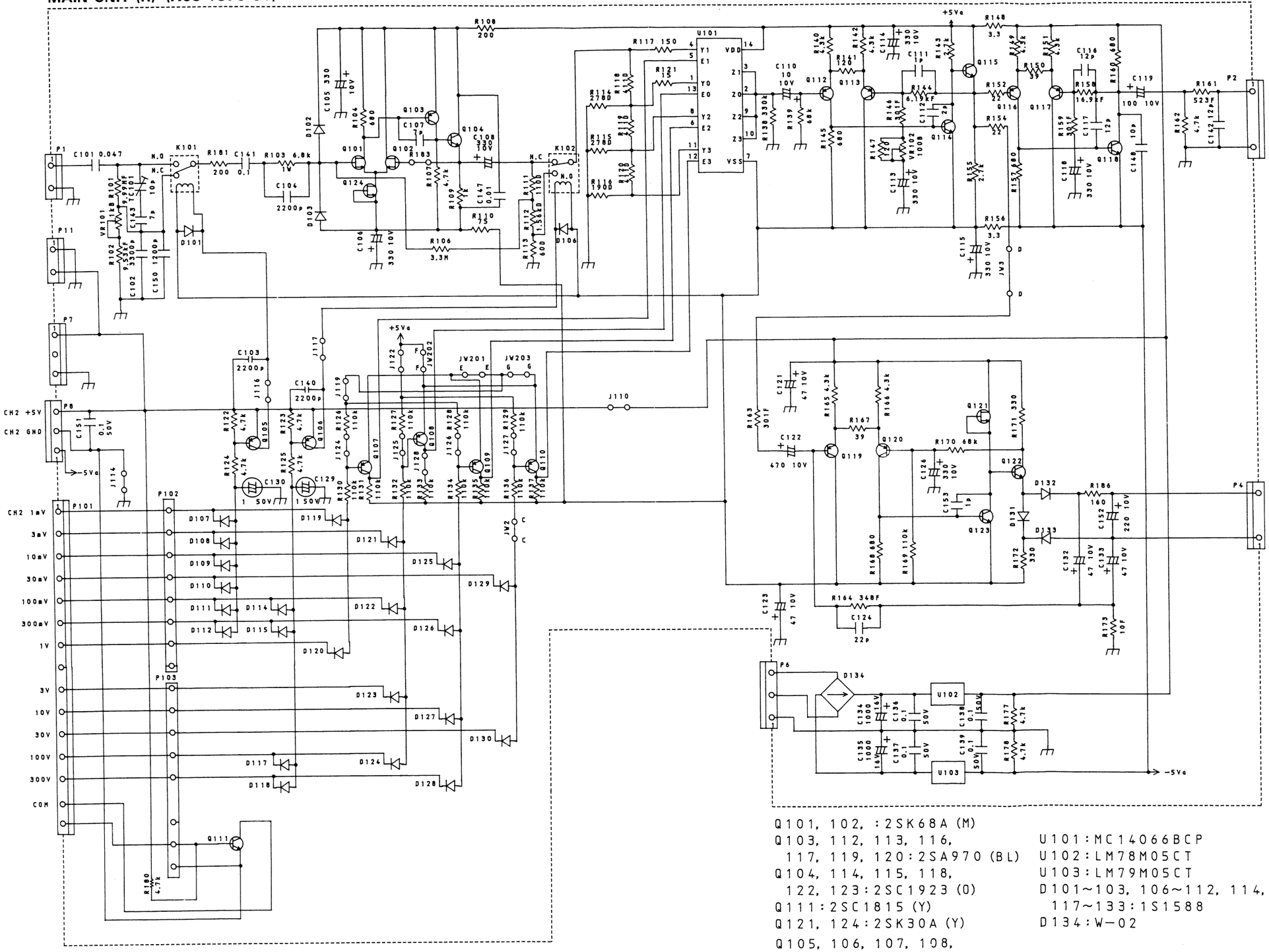


Q101, 102, : 2SK68A (M)
Q103, 112, 113, 116, 117, 119, 120 : 2SA970 (BL)
Q104, 114, 115, 118, 122, 123 : 2SC1923 (O)
Q111 : 2SC1815 (Y)
Q121, 124 : 2SK30A (Y)

U1, 2, 3 : TLP521-2 (BL)
U101 : MC14066BCP
U102 : LM78M05CT
U103 : LM79M05CT
D101~103, 106~112, 114, 115, 117~133 : 1S1588
D134 : W-02

SCHEMATIC DIAGRAM (VT-175)

MAIN UNIT (R) (X65-1370-01)

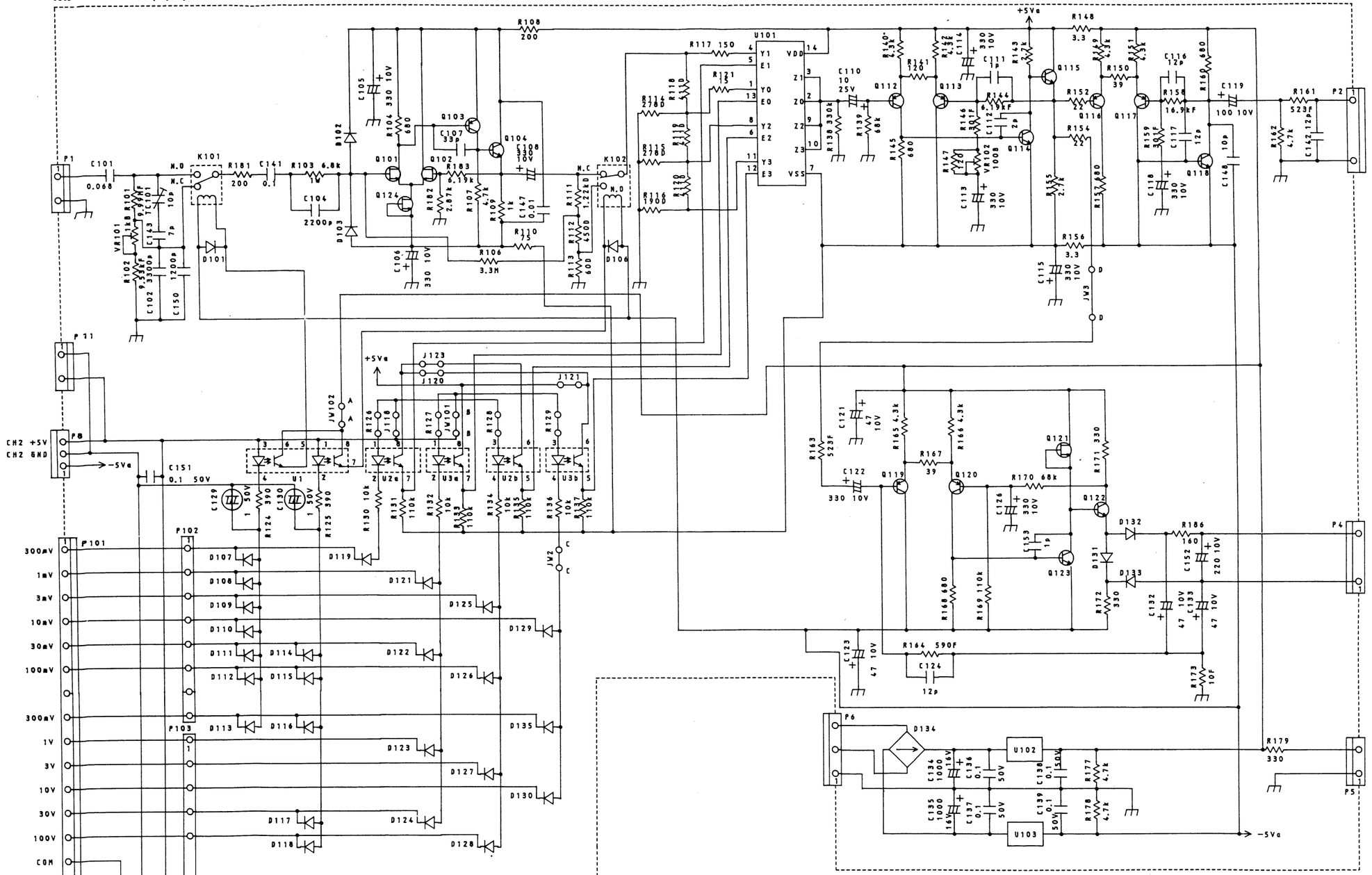


Q101, 102, : 2SK68A (M)
Q103, 112, 113, 116, 117, 119, 120 : 2SA970 (BL)
Q104, 114, 115, 118, 122, 123 : 2SC1923 (O)
Q111 : 2SC1815 (Y)
Q121, 124 : 2SK30A (Y)
Q105, 106, 107, 108, 109, 110 : 2SA1015 (Y)

U101 : MC14066BCP
U102 : LM78M05CT
U103 : LM79M05CT
D101~103, 106~112, 114, 115, 117~133 : 1S1588
D134 : W-02

SCHEMATIC DIAGRAM (VT-176)

MAIN UNIT (L) (X65-1370-03)

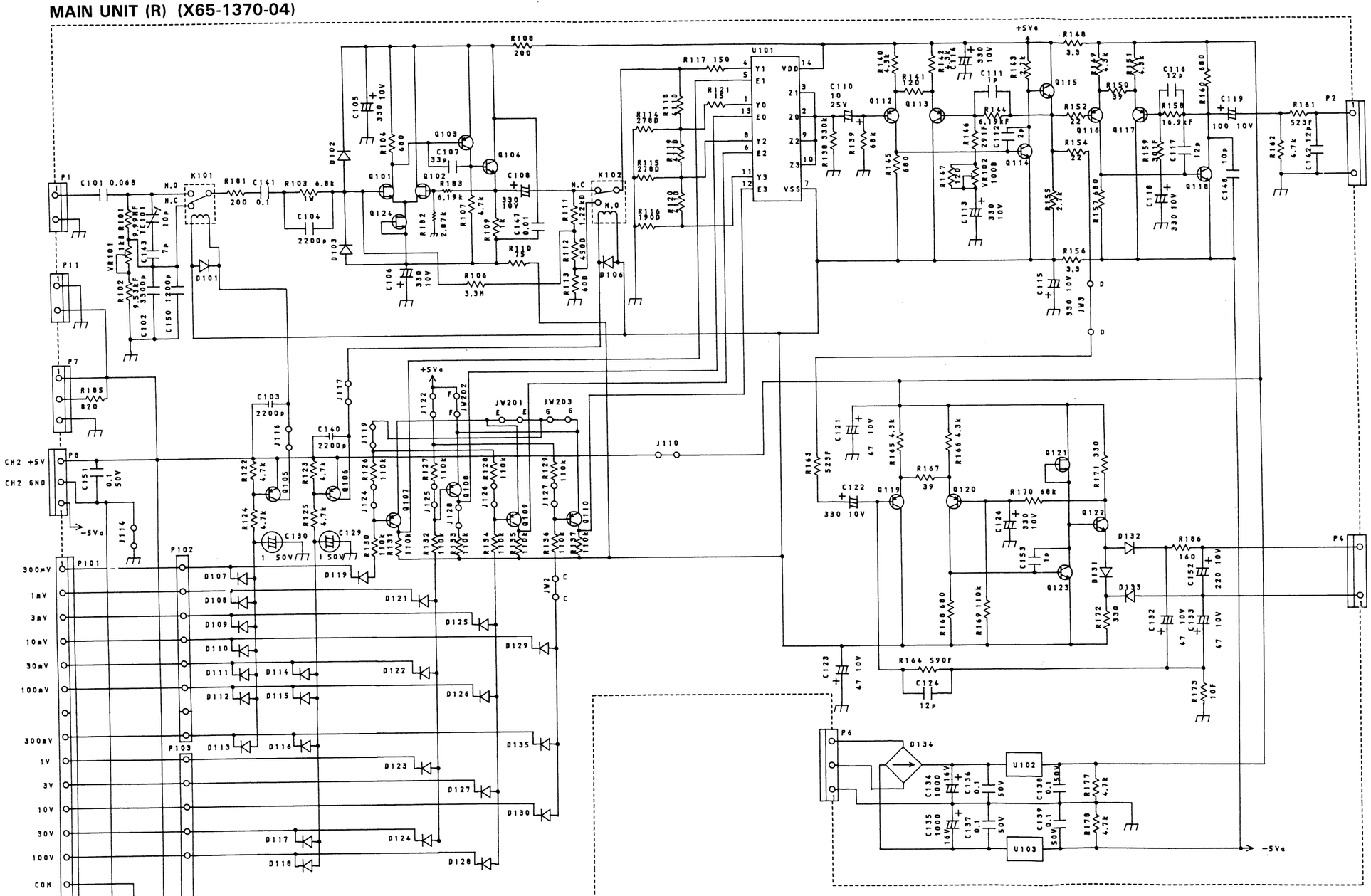


Q101, 102, :2SK68A (M)
Q103, 112, 113, 116,
117, 119, 120:2SA970 (BL)
Q104, 114, 115, 118,
122, 123:2SC1923 (O)
Q111:2SC1815 (Y)
Q121, 124:2SK30A (Y)

U1, 2, 3:TLP521-2 (BL)
U101:MC14066BCP
U102:LM78M05CT
U103:LM79M05CT
D101~103, 106~112, 114, 115,
117~133:1S1588
D134:W-02

SCHEMATIC DIAGRAM (VT-176)

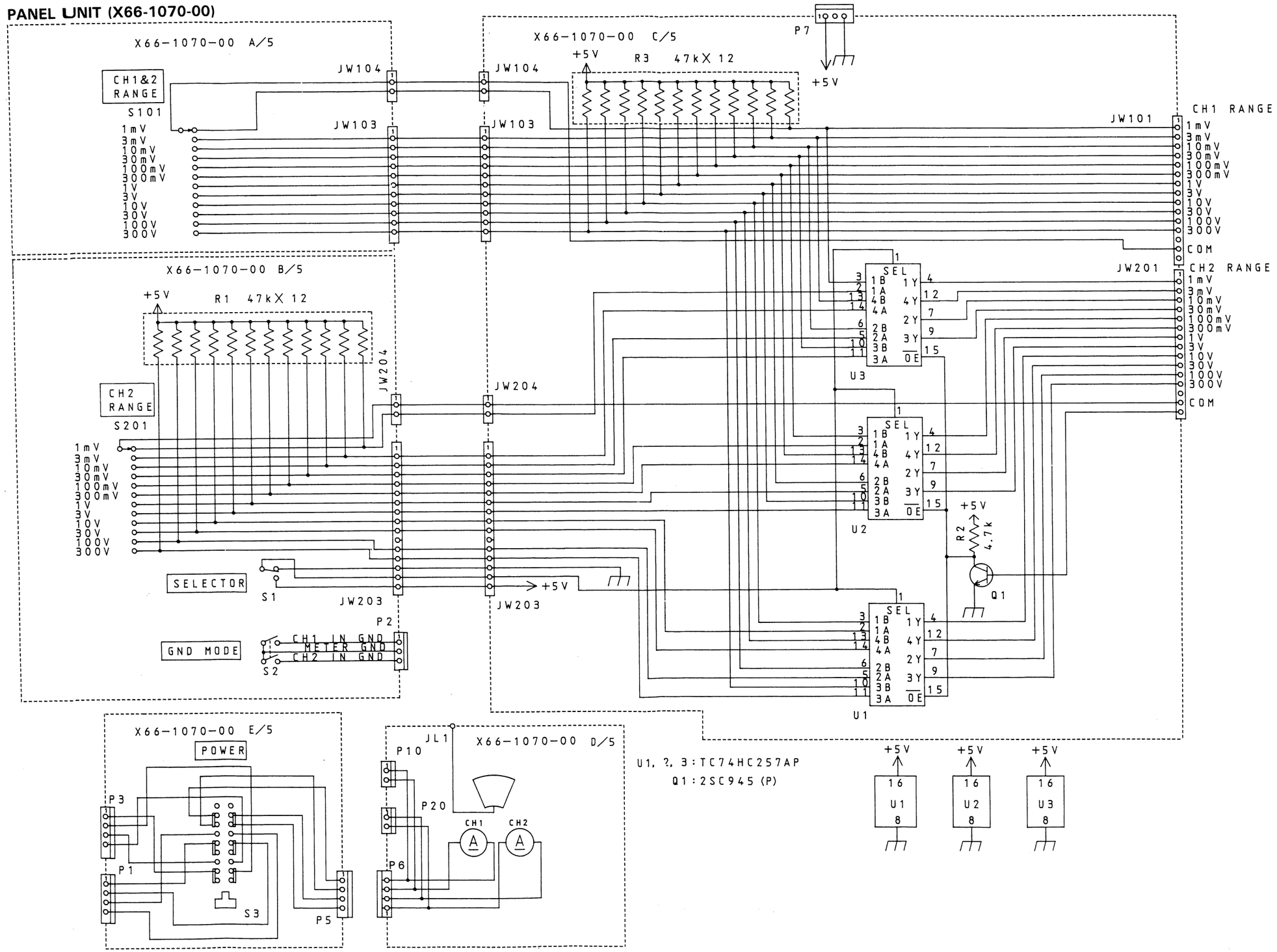
MAIN UNIT (R) (X65-1370-04)



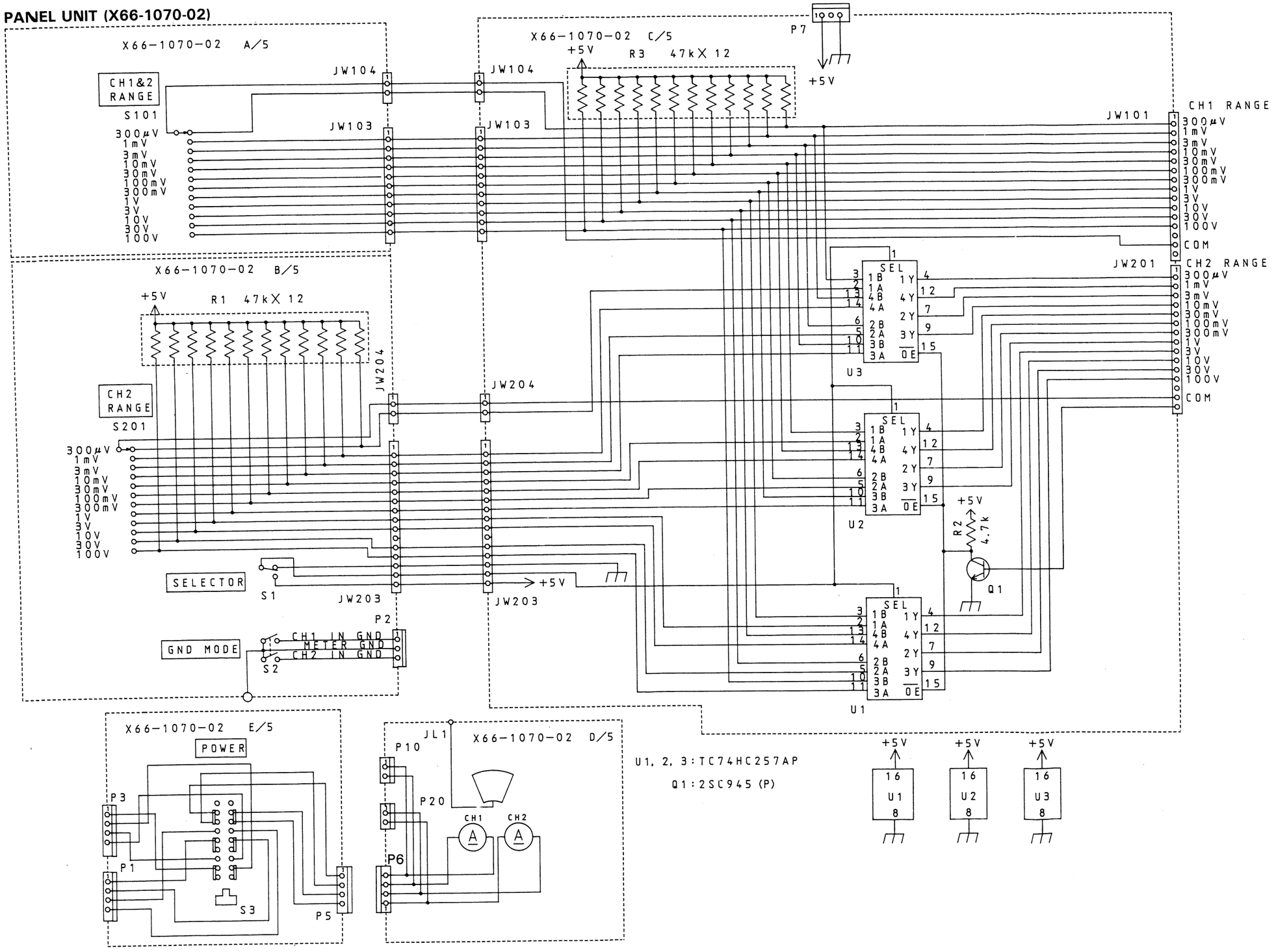
Q101, 102, : 2SK68A (M)
Q103, 112, 113, 116, 117, 119, 120 : 2SA970 (BL)
Q104, 114, 115, 118, 122, 123 : 2SC1923 (O)
Q111 : 2SC1815 (Y)
Q121, 124 : 2SK30A (Y)
Q105, 106, 107, 108, 109, 110 : 2SA1015 (Y)

U101 : MC14066BCP
U102 : LM78M05CT
U103 : LM79M05CT
D101~103, 106~112, 114, 115, 117~133 : 1S1588
D134 : W-02

SCHEMATIC DIAGRAM (VT-175)



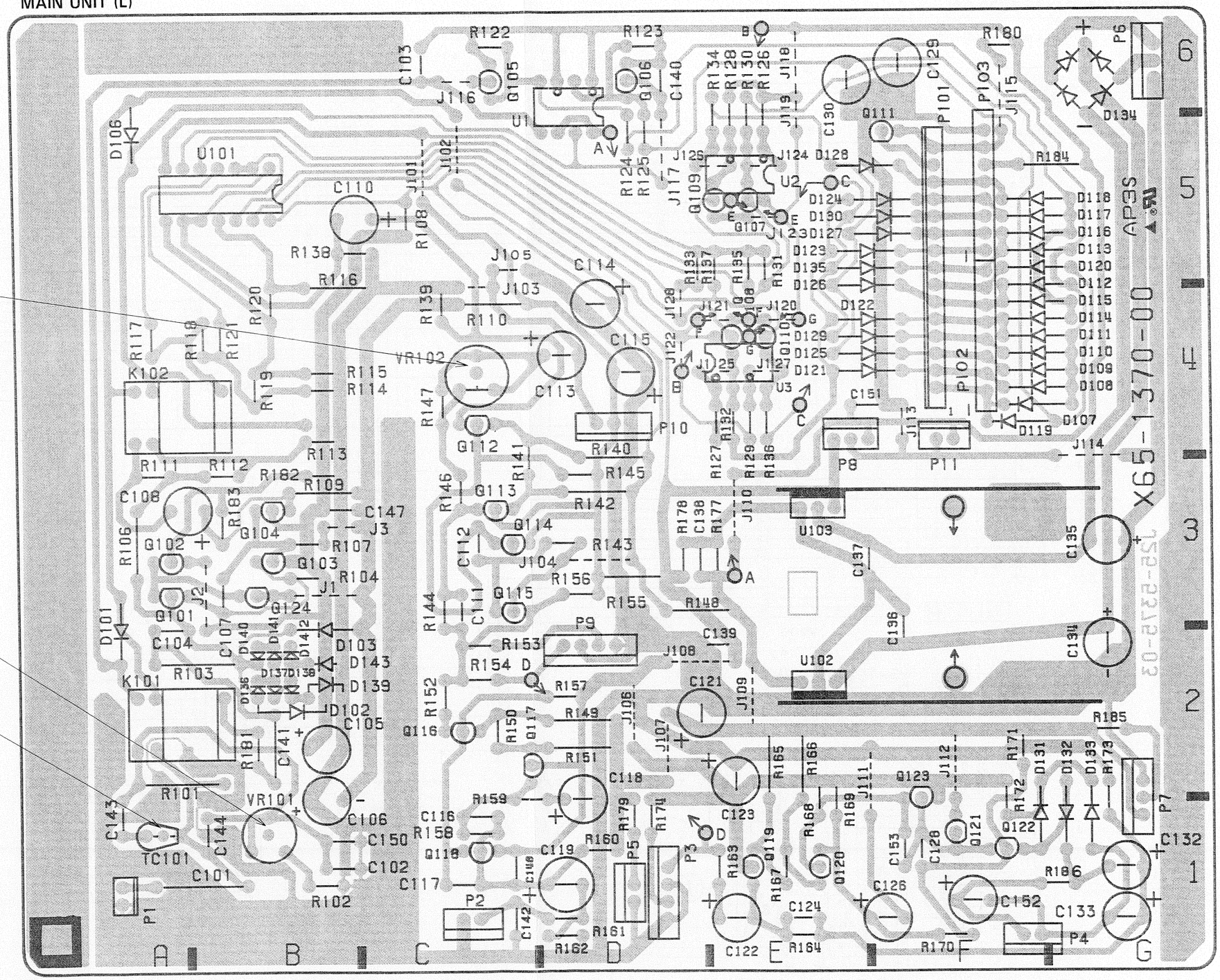
SCHEMATIC DIAGRAM (VT-176)



P.C. BOARD

MAIN UNIT (L)

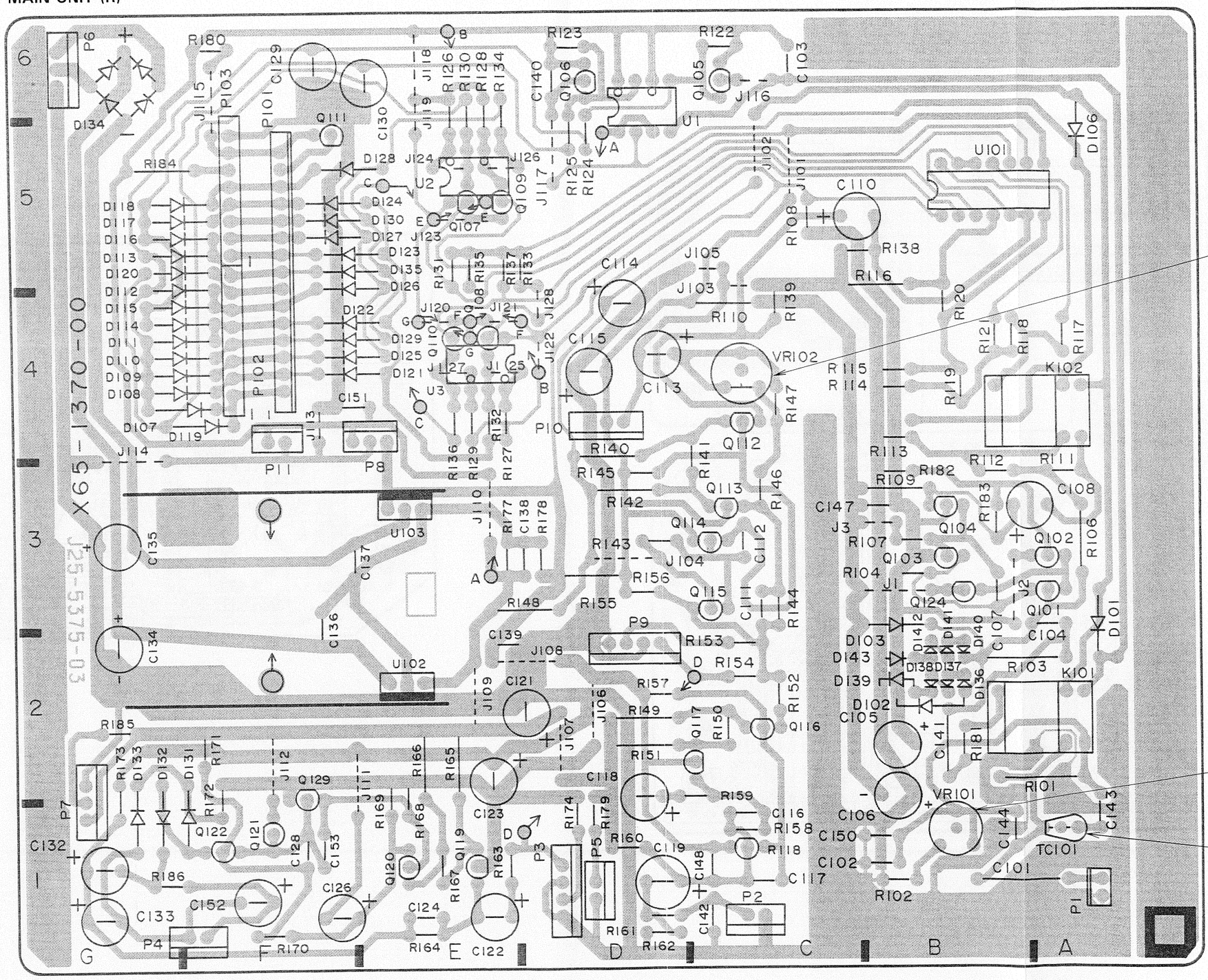
Parts Side View



P.C. BOARD

MAIN UNIT (R)

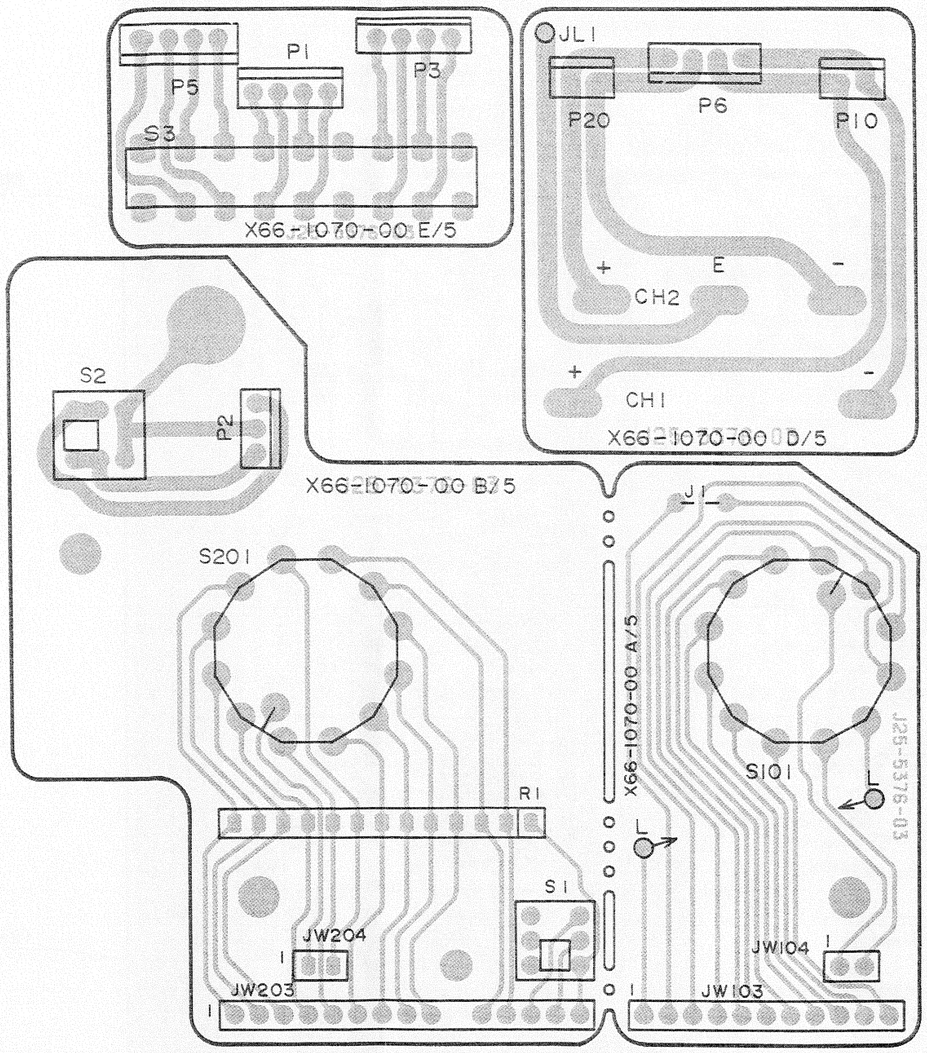
Pattern Side View



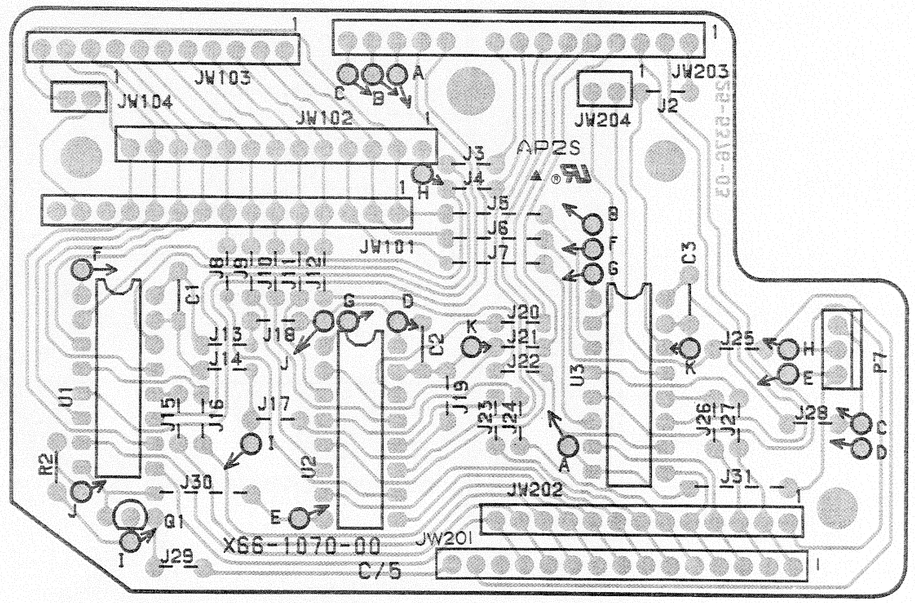
P.C. BOARD

PANEL UNIT

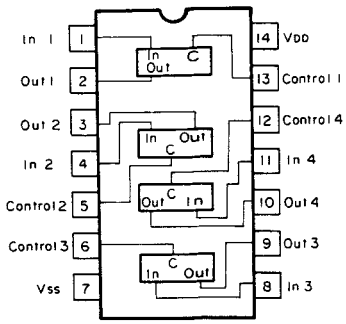
Pattern Side View



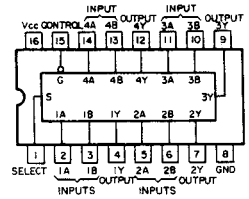
Parts Side View



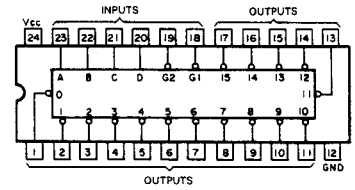
SEMICONDUCTORS



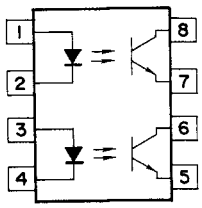
MC14066BCP



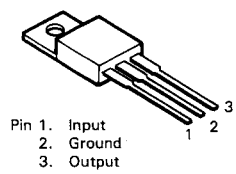
TC74HC257AP



SN74159N

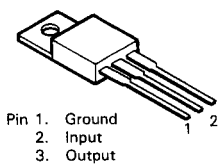


TLP521-2 (BL)



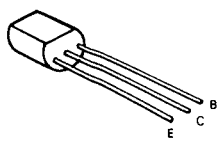
Pin 1. Input
2. Ground
3. Output

LM78M05CT

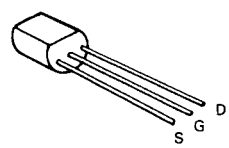


Pin 1. Ground
2. Input
3. Output

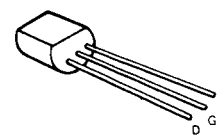
LM79M05CT



2SA970 (BL)
2SA1015 (Y)
2SC945 (P)
2SC1815 (Y)
2SC1923 (O)



2SK30A (Y)



2SK65A (M)